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# Theophrastus of Eresus

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# Theophrastus of Eresus: *On Winds*

*By*

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*To Estelle, Leo, and Tessa*





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## Preface

I came to work on this project quite by accident. In early March 2011, I had just finished a draft of the text and translation of my Loeb edition of the Aristotelian *Problems*. I had heard somewhere that Marlein van Raalte (Classics, Leiden University) was working on an edition of Theophrastus' *On Winds* for Project Theophrastus. Given the obvious connection between *Pr.* 26 and *On Winds*, I thought we could both benefit (but especially me) from trading our respective texts and translations. So I e-mailed Marlein to see if she was interested. The next day I heard from Bill Fortenbaugh (Classics, Rutgers University, and founder of Project Theophrastus), who said that Marlein was quite busy with many other projects and was not very far along with *On Winds*, and that she had contacted him to nominate me to take over. I rejected the invitation at first, on the grounds that I lacked the requisite codicological skills to prepare a critical edition. But Bill replied that Walter Burnikel had done the necessary work establishing the priority of *Vaticanus graecus* 1302 to all of the other extant manuscripts; and, he sent me a photocopy of that manuscript, which I found (after a little practice) surprisingly easy to read. So, I agreed to take on the project, with the understanding that—being an historian of ancient philosophy, but not a classicist—my commentary would be more philosophical or scientific than philological.

So, I must first thank Marlein van Raalte, not only for passing the baton to me, but also for sharing with me a preliminary draft of a commentary on *On Winds* 1–3, which she (and her colleague Adriaan Rademaker, who had been working with her on this project) had prepared. Many thanks as well to Michael Haslam, who promptly answered my questions about *Oxyrhynchus Papyrus* 3721, and to the anonymous reviewer for the press, whose comments on select portions of a draft of my work improved the entire volume. I am also grateful to Anton Bierl (Classics, University of Basel) for tracking down (perhaps the only copy of) Olof Gigon's 1937 University of Basel *Habilitationsschrift*: "Theophrastos Über die Winde, Text, Kommentar und Einleitung" (long thought to be lost), and to Ueli Dill (University of Basel Library) for getting a digital copy of this work to me before the present volume went to press. (I regret that I could not give Gigon's work the attention it deserves.) I must also thank Tessel Jonquière, and everyone else at Brill with whom I have worked over the past six years on this project, and more recently Cas Van den Hof (TAT Zetwerk), for their expertise and efficiency in the various stages of the production of this volume.

Three people deserve special thanks: Bill Fortenbaugh, for inviting me to undertake this project, for his comments on an early draft of the text and trans-

lation, and for answering a number of questions of all kinds in the early stages of this project. David Sider, for lending me his microfilm copy of Frederico Bonaventura's 1593 commentary on *On Winds*, and especially for his numerous comments on the penultimate draft of my text and translation. Last and not least, however, I must thank Christian Wildberg, who—after offering to help with any sections of the text that I found problematic—commented in writing on the thirty-one documents I sent him (in total, well over sixty pages, with texts, translations, and questions). His comments were invaluable. As I did not however accept every suggestion offered to me by Christian, David, and Bill, any remaining errors must be attributed to me.

Moving now to institutions: I am grateful to all of the libraries across Europe that provided me, in one form or another, with copies of the manuscripts containing *On Winds* (and in one case, with access to the manuscript itself). I mention two by name: In what I hope is the trend of the future, and for which I am very grateful, the Ancient, Medieval and Early Modern Manuscripts Section of the British Library has made available for free online a beautiful copy of *Lond. Brit. Mus. Add.* 5113. I am also grateful to the staff at the Rare Books Room of the University of Leiden Library, for providing such a comfortable setting in which to examine *Leid. Vossianus gr.* Q 25 as well as their two copies of the Vascosan edition of Theophrastus' *On Winds*, each containing indispensable marginal comments. (See the Introduction for details.) I also owe thanks to the Galkin Foundation, for a donation that helped (*inter alia*) to cover the costs of the copies of the other manuscripts. Finally, much of my commentary was completed during a 2013–2014 sabbatical leave: I wish to thank Seton Hall University for granting me that leave, and the Ayn Rand Institute for a Research Grant that made possible a year-long sabbatical.

# Introduction

Judging by the number of extant Peripatetic treatments of wind (ἄνεμος, πνεῦμα),<sup>1</sup> it was a subject of great interest in the Lyceum. Aristotle devotes a fair amount of space to wind in his *Meteorology* (1.13 and 2.4–6), and there are other works dealing with the subject that are in the *corpus Aristotelicum* but not generally considered authentic: *On the Cosmos* 4.394b7–395a14,<sup>2</sup> the very brief *On the Positions and Names of the Winds*,<sup>3</sup> and *Problems* 26 (the fourth longest book in that compilation).<sup>4</sup> The Peripatetic *On Signs*<sup>5</sup> has a section on the signs of winds (see especially §§ 26–37), and wind is the subject of the thirteenth chapter of Theophrastus' *Metarsiology* (extant solely in Arabic and in Syriac translations).<sup>6</sup> The sole Peripatetic treatise specifically devoted to winds, however, is Theophrastus' *On Winds* (Περὶ ἀνέμων, *De ventis*).

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1 On anemological terminology in Theophrastus' *On Winds*, see below pp. 69–70.

2 For an overview of *On the Cosmos*, and its account of meteorology, see Taub (2003, 161–168).

3 On the nature of this work, and its connection to *On Winds* 62, see below p. 350.

4 At the opening of *Mete.* 2.6, Aristotle writes: “Let us now speak about the position of the winds, and which ones are opposite to which, and which can blow simultaneously and which cannot, and what sort and how many there happen to be, and in addition to these about any other conditions that have not been discussed in the *Problems*” (363a21–25). This might seem to refer to *Pr.* 26, and to suggest that Aristotle himself was the author of at least some of its chapters, but that is disputed. What is clear is the close connection between much of *Pr.* 26 and Theophrastus' *On Winds*. See the subsection on *Pr.* 26 below.

5 On the nature of this work, see below, p. 249–250 (in my commentary on *On Winds* 35–36).

6 On the nature of this work, see Steinmetz (1964, 53–60), Gottschalk (1965), Mansfeld (1992), Kidd (1992), Taub (2003, 116–121), and especially Daiber (1992). This last contains an edition of the texts, commentary, and an English translation of the Arabic version. Diogenes Laertius refers to a Μεταρσιολογικῶν in two books (5.44 [144 Dorandi]). This is an alternative title to *Meteorology* and basically means the same thing (study of the things in the sky). See 137.15a–f FHS&G, with Sharples (1998, 16–18). Fortenbaugh comments (2014, 19): “The μετάρσια is Ionic, and according to Capelle [1913, 333 n. 3] and others [e.g. Sharples 1998, 17 n. 56] it is used by Theophrastus to pick out phenomena belonging to the atmosphere as against the μετέωρα, which belong to the heavens.” I agree with Mansfeld (1992, 314–316) and Sharples (1998, 159)—*contra* Daiber (1992, 287)—that these extant translations are in fact abridgements. (See also Gottschalk 1965, 759–760.) Mansfeld argues that the abridgement involves entire sections having been left out, but that “there is no reason to assume that the chapters that are left have been abridged.” Many of the chapters strike me as having been abridged as well. I read neither Arabic nor Syriac, and so depend entirely on Daiber's English translation of the Arabic version (1992, 261–271; 268–269 for § 13). (I regret that Bakker 2016 did not reach me until after this volume went to press. Bakker argues against the Theophrastean authorship of what he calls the *Syriac Meteorology*.)

Despite this fact, *On Winds* is a neglected work. This should not be a surprise. In the introduction to his Loeb edition of Aristotle's *Meteorology*, H.D.P. Lee wrote (1952, xxv): "That the *Meteorologica* is a little-read work is no doubt due to the intrinsic lack of interest of its contents." If this is anything like the state of affairs with regard to a work much broader in scope, and by Aristotle, what should we expect of a work much narrower in scope and by one of his students?<sup>7</sup> Still, I believe the neglect of *On Winds* (like that of the other Theophrastean *opuscula*) is unfortunate and unjustified, and I hope this new edition of the text, with translation and commentary, remedies matters somewhat.

## 1 The Text

This is the first critical edition of Theophrastus' *On Winds* since Coutant's (in Coutant & Eichenlaub 1975)—a somewhat valuable, but also flawed, volume<sup>8</sup>—and the first to make use not only of all of the medieval manuscripts, but of Oxyrhynchus Papyrus 3721 as well, which contains parts of *On Winds* 4–7 in a version much older than, and superior to, that of the medieval manuscripts.

### a The Medieval Manuscripts

In Howard Hawk's film *Rio Bravo* (1959), the sheriff John T. Chance has a difficult task ahead of him, and little by way of support. His friend Pat Wheeler asks him: "A game-legged old man and a drunk. That's all you got?" Chance responds: "That's *what* I got." This captures how I feel about *Vaticanus gr.* 1302 (ms. A)—the oldest codex containing the text of Theophrastus' *On Winds*.<sup>9</sup> Lacunose and corrupt to begin with, it has been damaged further over time.<sup>10</sup> And the

7 Things have improved a little in the fifty years since Lee's Loeb was published. On the "unjustified neglect of the *Meteorologica*," see Wilson (2013, 1–3). Wilson's recent book on the *Meteorology* gives that work the treatment it deserves. See also Strohm (1984).

8 I noted numerous errors in Coutant's reports on the manuscript readings (including, most significantly, ms. A) and on the conjectures of earlier editors. Further, Coutant & Eichenlaub's commentary (so-called) consists of endnotes that, whatever their value, rarely discuss textual matters.

9 The text of *On Winds* runs from 119<sup>v</sup> to 130<sup>r</sup>.

10 The main damage comes from some material having been used to bind (or to preserve the binding of) the codex. As a result, on every folio there is damage to the beginning (verso) or ending (recto) of several lines, rendering many words illegible. On average, the

publication of POxy 3721 (a fragment of *On Winds*, more on this below) has done nothing to increase our confidence in ms. A. As the editor of POxy 3721 commented (Haslam 1986, 172): ms. A's "text is now shown to be even more corrupt than had been suspected." In editions of Theophrastus' *Metaphysics*, which has much greater manuscript support, *Vaticanus gr.* 1302 is consigned to the basement of *Raro citantur*.<sup>11</sup> Dimitri Gutas, the most recent editor of that work, writes of it: "Its quality as witness to the text ... is marred by numerous peculiar mistakes. These alterations to the text are due to both errors and to substantial revision of the text at some point in the forebears of A (Burnikel [1974] 69)" (2010, 49). But as an editor of *On Winds*, *Vaticanus gr.* 1302 is 'what I got': not only is it the oldest codex containing *On Winds*, it is the one from which are derived the other eleven manuscripts<sup>12</sup>—the variant readings of which "are essentially emendations and conjectures like those found in several modern editions."<sup>13</sup> Whatever its flaws, it is indispensable for our purposes. So unless the *apparatus criticus* indicates otherwise, one should assume that the text printed in this edition is that of ms. A. Other manuscript readings are cited in the *apparatus criticus* rather selectively (more on this shortly).

In preparing this edition I consulted all twelve medieval manuscripts.<sup>14</sup> Most of the other manuscripts did not add all that much (with rare exceptions), but two require special mention here: (1) *Mediol. Ambrosianus* P 80 sup. (= ms. D) dates from before 1427 and is the closest to ms. A (and perhaps a direct copy).<sup>15</sup> It is a clear, legible manuscript which rarely departs from the reading in A. It turned out to be crucially important, in that I relied on it wherever ms. A proved illegible (especially owing to the binding problem described in note 10). As I

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beginning or ending of seven lines per page are obstructed, with the worst damage done to 122<sup>v</sup> (14 lines) and 123<sup>r</sup> (17 lines).

- 11 See Gutas (2010, 107). For his discussion of ms. A in connection with the *Metaphysics*, see pp. 48–51.
- 12 This has been established by Burnikel (1974). See also Wilson (1979). Cf. Gigon (1937, xx–xxi).
- 13 This quote is from Fortenbaugh's description of the role of manuscripts other than ms. A in his edition of Theophrastus' *On Sweat* (2003, 5). In this section of my introduction, I draw on his discussion of the manuscript tradition (pp. 5–9).
- 14 I examined *Leid. Vossianus gr.* Q 25 (= ms. H) *in situ*. For the rest, I relied on photocopies or digital photographs. I have two copies of ms. A: a photocopy (many years old) given to me by Bill Fortenbaugh when I took on this project, and a more recent pdf version which I purchased from the Vatican Library. Having two copies, made years apart, proved to be quite useful, as there were words that I could make out in the new copy but not in the old one, and *vice versa*.
- 15 See Burnikel (1974, 70–71).

indicate under Sigla (p. 23), D† in the *apparatus criticus* refers to the reading in ms. D where ms. A is illegible. For an idea of just how indispensable this manuscript was, note that the symbol D† appears over ninety times in the *apparatus criticus*. (2) *Bernensis gr.* 402 (= ms. B), circa 1480, though much less important than ms. D, is still worthy of mention, as it contains many interlinear and marginal corrections and suggestions by an intelligent second hand.<sup>16</sup>

Every reading in ms. A is included in the text and/or reported in the *apparatus criticus*, with one minor exception: I do not note errors in breathing marks or accentuation unless they are in some way significant. For example, at one point (in § 5) ms. A has *στᾶσιν*, which is simply a mistake for *στάσιν*, and this difference is not noted in the *apparatus criticus*. Such cases are rare. I do, however, mention the following difference, because it is relevant: where ms. A has *κῖον*, I print *Κῖον* (against most other editors, who follow Turnebus and read *ῥάσιν*—see § 43). Since this word is disputed, I include the exact reading of ms. A, even though the difference between it and what I print is merely a difference in accentuation. There are few such cases. The above mentioned exception aside, errors in ms. A are always noted in the *apparatus criticus* (though not always discussed in the commentary): for example (from § 1), ms. A's *αιθέριον* ('ethereal') is emended to *αἰθρίον* ("clear") in the Aldine edition (and this emendation is accepted by all subsequent editors); and as this change is certainly correct, discussion of it in the commentary is unnecessary.

Because of their dependence on ms. A, other manuscript readings are cited in the *apparatus criticus* for the following reasons only: (1) obviously, if I accept one of their readings over ms. A's; (2) if I (or another editor) regarded a reading as worthy of consideration, even if in the end I accept ms. A's; (3) if a passage has proven perplexing to editors, manuscript variations are sometimes cited even if I do not find them promising; (4) if an editor has mistakenly attributed a reading from one of the other manuscripts to ms. A or to some other editor or commentator. So for example, in the opening chapter, at one point ms. A reads ἡ διαλείποντας καὶ ἄνωμαλεις, which is in no way problematic. Therefore, although ms. V<sup>a</sup> omits all four words, and in place of ἄνωμαλεις ms. N has ἄνομαλεις and Vascosanus prints αἰωμαλεις (both clearly errors), I cite none of these deviations from ms. A in my *apparatus criticus*. Where other manuscripts are cited, I list only the earliest one to have a particular reading (if there is more than one). The result is, I hope, a somewhat leaner, more manageable *apparatus criticus* than it would have been otherwise.

16 On the second hand in ms. B, see Burnikel (1974, 25–34). So emended and annotated, ms. B was highly influential (via ms. S) on the *editio princeps* (the Aldine edition of 1497).

## b *The Oxyrhynchus Papyrus 3721*

This papyrus fragment was first published in 1986, in *The Oxyrhynchus Papyrus* vol. LIII, edited by M.W. Haslam. Haslam dates this to the second century AD<sup>17</sup>—so it is more than 1100 years older than ms. A—and describes it as follows (1986, 172): “This is an unintelligent copy of a text appreciably better than that carried by Cod. Vat. gr. 1302 .... Over this short stretch of text the papyrus offers several improvements unanticipated by modern conjecture .... At the same time it has some trivial errors uncorrected, and possibly a few less superficial.”<sup>18</sup>

I treat *POxy 3721* (= Π) as I do ms. A: i.e. where applicable (§§ 4.32–7.58), the reading of Π is always represented, in the text and/or in the *apparatus criticus*. I record the reading of Π in the *apparatus criticus* where it differs from that of ms. A, or where I contrast the shared reading of A and Π with some other manuscript reading or scholarly conjecture or emendation.

Here are the differences between Π (as edited by Haslam) and A, with what I regard as the superior reading first. (My reasons are discussed in the commentary.)

- § 4: καὶ ὥστε ἀπλῶς εἰπεῖν Π : πῶς εἰπεῖν ἢ A  
τόπου πνέοντες Π : τόπου (*lac. 5 litt.*) πνέοντες A
- § 5: προσκόψη Π : παρακόψη A  
δ' αὐτῆς Π : αὐτῆς δ' A  
μέγας ὁ δὲ βορέας λήγων Haslam ex Π (νότος ὁ δὲ βορέας ἀηγων) : μέγας A
- § 6: συνεχές A : ἀσυνεχές Π  
τάδε δ' οὐκ(?) ἂν δόξειεν ἀνάλογον Π : τοῦτο δ' οὖν καὶ δόξει ἀνάλογον A  
ἔχειν Π : εἶναι A  
ἐγγὺς Π : ἐαυτοῦ A  
κατὰ χειμῶνα Π : χειμῶν D†  
ἐπινεφῆς Π : συννεφῆς A
- § 7: φθάνει πηγνὺς Π : φθάνει καὶ πηγνὺς A  
δὲ τὰ Π : τὰ A  
ἦ ἦ Π : ἦ A  
τὸ μέγεθος Π : τοῦ μεγέθους A  
τοῦτο τὸ ἐργαζόμενον Π : τοῦτο ἐργαζομένη A

17 In the edition itself, Haslam assigns this papyrus to “the second half of the second century” (1986, 172). In a recent e-mail to me (September 2014), however, he wrote that, having looked at the papyrus again, “I’d now say it was earlier (but still probably 2nd rather than 1st century).”

18 For a somewhat different view of this papyrus and its relationship to the manuscripts, see Becchi (2014).

αἰθρίος ἀεὶ Π : αἰθρίαν ἄγει A  
 ἀπωθεῖ Π : ἀπωθεῖται A  
 οὕτως Π D : οὕτως A<sup>19</sup>

Note that in every case but one (an obvious error, in context: ἀσυνεχὲς for συνεχὲς), I prefer the reading of Π to that of ms. A.

### c [Aristotle] Problems 26

It has long been recognized, and is beyond doubt, that there is a connection between *Pr.* 26 (“Ὅσα περὶ τούς ἀνέμους”) and Theophrastus’ *On Winds*.<sup>20</sup> Over two-thirds of the 63 chapters in *Pr.* 26 have some connection to *On Winds*. The first scholar I know of who made explicit his awareness of this connection is the aforementioned second hand writing in the margins of *Bernensis gr.* 402 (ms. B). Over a dozen times he quotes the *Problems* in the margins, adjacent to the passage in *On Winds* it parallels. And every editor since, myself included, has used relevant portions of *Pr.* 26 to smooth over rough patches in the text of the manuscripts and/or to come to grips with what Theophrastus might be saying in some particularly obscure passage. *Pr.* 26 is by far the most frequently mentioned text in the second apparatus (of parallel passages), and its readings (whether accepted or not) are often discussed in the commentary.

I have much more to say about specific connections between *Pr.* 26 and *On Winds* in the commentary. I’ll simply add here Fortenbaugh’s words of caution, which he wrote in connection with the similar relationship between *Pr.* 2 and Theophrastus’ *On Sweat* (2003, 13):

The parallels in the *Problems* can assist us not only in understanding but also in emending the Theophrastean text. Caution is, however, necessary, for the compiler of the *Problems* is capable of adapting his source. He may, for example, introduce his own words and add material not found in *On Sweat*.

And the same is true for the authors of *Pr.* 26, in the use they make of, or in the questions they raise about, *On Winds*.<sup>21</sup> For example: On the one hand, I

19 Haslam (1986, 173) writes: “There is nothing [in Π] to upset the archetypal status assigned [to ms. A] by Burnikel, despite an agreement between the papyrus and later manuscripts [e.g. D] over οὕτως in § 7 ([col.] iii 21), against [ms. A’s] οὕτως (which editors have preferred, mistakenly as I believe).”

20 On the relationship between the two, and the priority of *On Winds*, see Mayhew (2015a).

21 Fortenbaugh’s entire discussion of *Pr.* 2 and *On Sweat* (2003, 12–15) is worth reading in the present context, as much of what he says applies to *Pr.* 26 and *On Winds*.



see no need to emend ms. A's ἐκπίπτουσα (§ 19) to ἐμπίπτουσα, as found in the parallel passage in *Pr.* 26.48 (and as recommended by Bonaventura 1593, 144). Nor do I think ἀθρόον (§ 36) should be emended to ἀθρόοι (from *Pr.* 26.25), as Forster says we “must” do (1921, 166–167). On the other hand, δειλῆς (*Pr.* 26.35a) is clearly better than ms. A's δειλῶς (§ 38), and ἐν γῇ (in § 40) only fully makes sense if we add ὑπομένει τὴν εἴλην (as first suggested by Forster 1921, 167), which is found after ἐν γῇ in *Pr.* 26.52. Such alternative readings are discussed in the commentary.

#### **d**      *Alexander of Aphrodisias, Commentary on Aristotle's Meteorology*

Alexander's *Commentary* is occasionally helpful. First (and perhaps least), Alexander confirms the title of *On Winds* listed in Diogenes Laertius (5.42), when, in quoting a passage from *On Winds*, he refers to Θεόφραστος ἐν τῷ περὶ ἀνέμων (CAG 3.2 p. 97.10–17; 189.1 FHS&G). More important, that quotation allows us to repair a particularly corrupt and lacunose portion of § 55. Alexander elsewhere quotes from or paraphrases a lost section of Theophrastus' *Metarsiology*, which sheds light on an obscure discussion of the direction of wind (i.e. sideways, rather than up or down) in § 22 (CAG 3.2 pp. 93.26–94.2 = 186A FHS&G). Finally, Alexander twice in close proximity paraphrases parts of the mangled ending (or last extant part) of *On Winds* (§ 62), which helps somewhat in making sense of that passage and in recovering the name of one wind (CAG 3.2 p. 108.30–33 = 188 FHS&G; and, 3.2 p. 108.20–23, see 189.2 FHS&G).

#### **e**      *Previous Editions and Other Relevant Scholarly Works*

In preparing the text, I have tried to make use of every scholarly edition of and commentary on *On Winds* that I'm aware of, beginning with the first printed edition, the Aldine (1497): I have accepted over twenty readings original to this edition (mostly obvious corrections of misspellings or other such mistakes). In a little over a century after the publication of the Aldine, five other editions appeared, which are (with one exception) of little or no interest: Grynaeus (1541),<sup>22</sup> Vascosan (1551),<sup>23</sup> Camotius (1552), Furlanus (1605), and Heinsius

22 Coutant & Eichenlaub (1975, xv) attribute the editing of this work to Oporinus (the publisher). The confusion is no doubt caused by the fact that Grynaeus' name is not apparent on the title page (at least not in the edition or copy I have worked with). But note Sider and Brunschön (2007: 230): “This volume was printed with two different prefaces, first with one by H. Gemuseus and again with one by Joachim Camerarius, who praises the recently deceased Grynaeus.”

23 Michel de Vascosan (French, d. 1557) was a publisher and editor. The cover page of this

(1613). Furlanus is the exception, as he offers a number of independent suggestions (many later accepted by Schneider, a dozen by me), and his edition is followed by a commentary. The three published prior to Furlanus follow the Aldine rather slavishly, just as Heinsius follows Furlanus, with only an occasional variation.<sup>24</sup>

Vascosanus, however, is interesting accidentally, so to speak. The rare book room of the Leiden University Library contains not only *Vossianus gr.* Q 25 (= ms. H), but two other volumes important for the study of *On Winds*, namely, two copies of Vascosanus. What is important is not the edition itself, but the fact that both copies (call nos. 757 D 32:2 and 758 C 1:3) contain important marginalia. This came as a surprise to me; for although editors and translators of *On Winds*, going back to Bonaventura (1593), refer to the marginalia in the Vascosanus edition in the Leiden University Library, I had seen no reference to there being *two* copies with marginalia nor descriptions that do justice to what these volumes (and especially 757 D 32:2) contain. 758 C 1:3 binds together three *opuscula* of Theophrastus published at various times by Vascosanus (in the following order in the volume): *On Fire* (1552), *On Winds* (1551), and *On Odors* (1556). The relatively few marginal emendations in *On Winds*, by an unknown hand, are quite intelligent, though they are likely later than the other set and perhaps dependent on it. Much more important and fascinating is 757 D 32:2, which contains three works published by Vascosanus: [Aristotle's] *On the Cosmos* (1551), Theophrastus' *On Winds* (1551), and Demosthenes' *Against Leptines* (1548). All three contain extensive emendations and marginalia, and the first two include extra inserted pages with facing handwritten Latin translations. These additions are almost certainly the work of the eminent classical scholar Adrianus Turnebus (French, 1512–1565). The translation of *On the Cosmos* ends with the handwritten *Adriano Turnebus 12 Septemb. 1551*, and the bound volume itself has in pencil at the bottom of the opening (otherwise blank) page: *Interprete adriano turnebo 11 mensis augustis 1551*. I speculate that this was the work Turnebus sent (or planned to send) to the publisher Vascosanus (for whom he had produced editions with Latin translation of two other *opuscula* of Theophrastus, *On Odors* and *On Fire*). When or even whether such a work was published is unclear. (As far as I can tell, Turnebus' Latin translation of *On Winds* was first published posthumously, in 1600.<sup>25</sup>) Turnebus is the scholar

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edition reads: ΘΕΟΦΡΑΣΤΟΥ ΠΕΡΙ ΑΝΕΜΩΝ. *Teophrasti De Ventis. Lutetiae* [i.e. Paris] *apud Vascosanum* ... MDLI.

24 I accept the following number of suggestions from these other editors: Grynaeus (4), Vascosanus (1), Camotius (0), Heinsius (1).

25 In Adriani Turnebi *Opera*, vol. 2 (Argentorati [= Strasbourg], Zetzner: 1600): 41–48. Unfor-

who has most influenced my edition of *On Winds*, in that I have accepted more of his suggested emendations (over 120) than I have of those of anyone else. (In the *apparatus criticus*, I use ‘Turn.’ and ‘Anon.’ to refer to 757 D 32:2 and 758 C 1:3 respectively.)

Noteworthy too is the commentary of Frederico Bonaventura (1593), which, though it does not contain an edition of the text, offers many original suggestions (a number of these based on *Pr.* 26).<sup>26</sup> I have accepted over twenty of these.

From the end of the sixteenth century to the early nineteenth, there was (so far as I know) no noteworthy work done on Theophrastus’ *On Winds*. The next important piece of scholarship was Schneider’s magisterial five volume edition of the Greek text, with Latin translation and textual notes, of the works of Theophrastus (1818 & 1821)—including, of course, *On Winds*.<sup>27</sup> Schneider offered many original suggestions of his own, both in his edition and in his notes. (I have accepted over thirty of them). And, apart from being important in its own right, his edition and notes were highly influential on what has become the standard edition of the Greek text of the works of Theophrastus, namely Wimmer’s (1862 & 1866).<sup>28</sup> Though Schneider influenced Wimmer, the latter introduced many new readings of his own, of which I have accepted five.<sup>29</sup>

The next critical edition to appear was Olof Gigon’s 1937 University of Basel *Habilitationsschrift*: “Theophrastos *Über die Winde*, Text, Kommentar und Ein-

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tunately, unlike the other Theophrastean works in this volume, his translation of *On Winds* is not followed by notes on the text. (More work needs to be done, which I am not equipped to do, to determine the relationship between that published Latin translation, and the handwritten one in 757 D 32:2).

- 26 Bonaventura often refers to Turnebus’ reading of the text; but it is unclear whether he had access to a Greek edition now lost or was simply inferring the reading from Turnebus’ Latin translation (to which he sometimes refers)—or in fact, whether he was referring to the emendations in 757 D 32:2, which he consulted and knew to be the work of Turnebus.
- 27 Regarding *On Winds*: the first volume contains the Greek text (1818, 757–782); the second contains a revised version of Turnebus’ Latin translation (1818, 451–465), as well as notes on the text (588–599); the third volume contains nothing relevant to *On Winds*; the fourth (1818, 680–719) and fifth (1821, lvi–lvii & 159–163) volumes contain further notes on the text.
- 28 Schneider also introduced into the text what have become the standard chapter divisions. More on these below, in my discussion of the structure of *On Winds*.
- 29 For a bit more information on the Aldine edition, and those of Grynæus, Camotius, Bonaventura, Furlanus, Heinsius, Schneider, and Wimmer, see Sider & Brunschön (2007, 230–232).

leitung,” which is superior to all previous editions.<sup>30</sup> (I first saw mention of this in Burnikel 1974, xviii.) Immediately after hearing about it, I attempted to locate a copy. The University of Basel Library did not possess one, and according to their records (I was told) they never have. I wrote to Walter Burnikel, who reported (in a July 2011 e-mail) that he had given the copy he had back to Peter Steinmetz, who had returned it to its original owner. Finally, while putting the final touches on this volume, I heard from Anton Bierl (Classics, University of Basel) that a copy of this work had been found. A digital copy of the work has been made available by the University of Basel Library, and I received a pdf. copy just about the time I planned to send to the press the final draft of this volume. Though I have not made use of Gigon’s commentary, I have noted his original readings (a few of which I have accepted).<sup>31</sup>

The most recent edition is Coutant’s (in Coutant & Eichenlaub, 1975).<sup>32</sup> Although his *apparatus criticus* is (whatever its errors) superior to Wimmer’s (and in some respects fuller than mine), and although this edition is the first to have the advantage of Burnikel’s work establishing the primacy of ms. A, the book was actually more helpful with my translation and commentary than it was with the text, so I say a bit more about it in the next section. (I should mention, however, that I have accepted a half dozen of his original editorial suggestions.)

Had I cited in the *apparatus criticus* all of the suggestions offered by the above mentioned scholars, it would have become too bloated. I have aimed to make it as lean as possible, referring to these editorial suggestions only when I have accepted them—with two exceptions: (1) As Wimmer’s edition

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30 The one (minor) flaw: Many if not most of the emendations that Gigon attributes to Schneider were in fact the suggestions of an earlier scholar (usually Turnebus).

31 My guess is that this (sole?) surviving copy is either a draft that Gigon sent to an advisor (perhaps Peter von der Mühl, his *Doktorvater*, whom he thanks in the preface), or a marked up copy he considered submitting for publication. First, the introduction and commentary contain many interlinear and marginal handwritten comments (some in a second hand). Second, his text consists of the cut-out pages of Wimmer’s text, glued to graph paper, with handwritten marginal notes indicating where his text differs from Wimmer’s, and at the bottom of the page a full *apparatus criticus* (also handwritten, with additional comments and corrections, some in a second hand).

32 Victor Coutant was a classicist (and Professor of Foreign Languages at Western Michigan University), who had four years earlier published a text, with translation and commentary, of Theophrastus’ *On Fire*. Val L. Eichenlaub was a climatologist (and Professor of Geography, also at Western Michigan University). I assume that Coutant is responsible for the text, the *apparatus criticus*, and the translation, and that the commentary is the work of both Coutant and Eichenlaub.

has become standard (it is the one used by the *TLG*), I always note in the *apparatus* the source of the text he prints. (2) As Gigon's edition has only recently come to light, I thought it would be helpful to indicate his original conjectures and emendations, if not in my commentary then in the *apparatus*. Many of the suggestions of these scholars that are not cited in my *apparatus* are nevertheless mentioned or discussed in the commentary.

## 2 The Translation and Commentary

In translating this work, I have tried to stay as close to the Greek as possible, without going beyond what is acceptable English—though at times I have perhaps crossed the line, in preserving what I see as the ambiguity of the text, and I have in general done little to smooth over the terse, chopped, and lecture-note-like prose of the original. I have also tried, where possible (but without violating common sense) to translate key terminology the same throughout.<sup>33</sup> (I have not employed footnotes in the translation, as everything that struck me as noteworthy is dealt with in the commentary.)

It is common practice to use pointed (< >) or square ([ ]) brackets to indicate insertions into the translation of material not actually in the Greek. However, I use pointed brackets in the translation solely for the rendering of material in the Greek text appearing in pointed brackets, to note an insertion, and square brackets (only once) for the rendering of a word in the Greek text that I believe should be cut. (Most bracketed words in the text are left untranslated.) I use *parentheses* in my translation *only* to convey material that I believe is implied in the text but not actually present. For example, from § 6: “but (blowing) <into> far off (lands), it is more irregular and dispersed” translates <εἰς> δὲ τὰ πόρρω καὶ ἀνωμαλῆς καὶ διεσπασμένος μᾶλλον; or, from § 1: “according to season or [not] always blowing” translates καθ’ ὥραν ἢ τὸ [μὴ] ἀεὶ πνεῖν.

In struggling to translate this difficult treatise, I always consulted, and was often helped by, the two previous English translations of *On Winds*: Wood (1894) and Coutant (1975). And I was similarly helped by many of the scholars mentioned in the previous section, and throughout the commentary.

The commentary is organized first around Schneider's chapter divisions, and then within each such division I have further divided the discussion, with

33 The one noteworthy exception is πνεῦμα, which I have translated differently in different contexts, as seemed necessary. See the discussion of the wind-terminology in *On Winds* at the outset of my commentary (pp. 68–70).

the relevant text (in bold) marking a new subdivision. Throughout my main concern is to explain (as far as possible) the content of the text, Theophrastus' arguments, the place of a particular passage in the overall structure of the work (more on that below), the presuppositions behind any claims of Theophrastus, and the basic philosophical-scientific concepts he relied on. I also aim where possible to note any connections to other (early) Peripatetic works.<sup>34</sup>

Although I do not consider this a philological commentary, obviously philological issues could not be avoided in explaining or defending the readings I have accepted or conjectured. Here, I want to indicate what of a philological nature is discussed in the commentary—or more accurately, what is *not* discussed. I do not comment on every difference between my text and what is found in ms. A, though every such difference is of course recorded in the apparatus. If I pass over a deviation from the reading of ms. A without comment, that simply means that in my view the emendation or alteration is obviously correct or much better, and that it would be pointless (because obvious) to explain why in the commentary. Here are three examples: (1) in §16, κατέπαυσεν (ms. B<sup>pc</sup>, 'put an end to', 'leave off') makes sense in context whereas ms. A's κατέκαυσεν ('burn') does not (and this is all the less problematic, because it is a difference of just one letter); (2) in §27, the reading of ms. S (δύνωνται) must be accepted over that of ms. A (δύνανται), as ὅταν requires the subjunctive; and, (3) in §16, Turnebus' striking out of the first letter in ms. A's ὑπνεῖν is necessary, as πνεῖν is a perfect fit, whereas ὑπνεῖν is a rare infinitive<sup>35</sup> and (even more important)

34 It was not my aim, however, to discuss the influence of Theophrastus on later theories of wind, as this is a big subject that would have taken me too far afield in a commentary on *On Winds*. So aside from the aforementioned connections between *Pr.* 26 and *On Winds*, and the remainder of this footnote, I have nothing to say on the subject. Sharples (1998, 144–146) writes that "There has been extensive discussion of the use of Theophrastus' explanation of meteorological phenomena in Epicurus, *Letter to Pythocles*; in Cicero, *On Divination* 2.42–45; in Lucretius; in Arius Didymus; in Vitruvius; in Seneca, *NQ* book 1, book 2, book 5 and book 7; in [Aristotle], *On the Universe (De mundo)*; in Arrian on meteorology cited by Stobaeus; in Adamantius, *On Winds*; in Priscian of Lydia, *Answers to Chosroes* 10; and in the 10th-century writings of the Arabic 'Brothers of Purity' and the *Cosmography* of al-Qazwīnī." For each of these items, Sharples has a footnote providing bibliographical information. Steinmetz (1964, 60–80) provides a summary of the *Nachwirkung* of Theophrastus' theory of wind (though nearly half of that is on *Pr.* 25–26); see Gottschalk (1967, 22) for critical comments. Lettinck (1999, ch. 5) traces the influence of the accounts of wind in Aristotle and Theophrastus on the Greek commentators and especially on Arabic thinkers (up to and including Averroes). See also Mansfeld (1992, 324–335) and Taub (2003, ch. 4).

35 According to the *TLG*, ὑπνεῖν appears just twice, and only in Athanasius (6th c. AD).

meaningless in context. Such obvious cases aside, I discuss deviations from ms. A, as well as any cases in which I accept the reading of ms. A over the consensus of other editors and scholars. If I have unwisely rejected a reading of ms. A in favor of some emendation or conjecture, I am confident at least that the accuracy of my *apparatus criticus* will allow scholars using my edition of the text to correct such errors.<sup>36</sup>

This commentary would not have been possible—or at least would not be what it is—without the earlier work of Project Theophrastus: the two text and translation volumes (Fortenbaugh et al. 1992), and the relevant commentary volume, namely Sharples (1998). In addition to Sharples's commentary, as well as many of the works mentioned in the previous section (on the text), Steinmetz (1964) is also worthy of mention here, as a particularly valuable secondary source (though see Gottschalk 1967).

I conclude this section by indicating another issue that I won't be discussing, namely, the (in)accuracy of Theophrastus' theory of wind and his claims about the individual winds, and so how his views compare to what modern meteorologists or climate scientists know to be true about wind.<sup>37</sup> It is a common practice today for people with no knowledge of climate science or meteorology to proclaim confidently their views on the nature (and causes and effects) of certain aspects of climate. Against this trend, I here confess my (virtually complete) ignorance of the subject. Fortunately, you don't need a weatherman to know which way the wind blows according to Theophrastus.

### 3 Aristotle and Theophrastus on the Nature of Wind

It is worth noting that both Aristotle and Theophrastus, usually so attentive to what earlier philosophers had to say on a given subject, *seem* quite uninterested in (or unimpressed by) what their predecessors said in connection with the nature of wind: for there is no (obvious) engagement with earlier thinkers,

36 In my commentary, I occasionally note earlier editors' mistakes in reporting the reading of ms. A.

37 But see Coutant & Eichenlaub (1975, xxvii–xxxv): the section entitled “Accuracy in Observations in *De Ventis*.” They summarize (p. xxxiv): “The high degree of accuracy of Theophrastus' observations bespeak carefully kept data, accumulated over a substantial number of years. Intuitive or subjective conclusions can be virtually ruled out as a basis of his factual statements.” This of course does not mean that Theophrastus' *theory* of wind is accurate; but it is, nevertheless, something valuable and admirable.

though many presocratics and Hippocratic writers certainly had theories (or at least opinions) about the nature of wind.<sup>38</sup> For example: Anaximander held that “wind is a rush of air, when what is most fine and most moist in it is moved or melted by the sun.”<sup>39</sup> According to Anaximenes, “the winds are formed out of water and air, and by an unknown rush of some sort are carried along violently and fly swift as winged creatures.”<sup>40</sup> Seneca reports that “Democritus says that when there are many particles, which he calls atoms, in a narrow void, wind results; by contrast, the state of the air is peaceful and calm when there are few particles in a large void.”<sup>41</sup> And for a relatively sophisticated, however brief, example of a Hippocratic account of wind, see *On Regimen* 2.38.<sup>42</sup>

It may be that Theophrastus was in agreement with Aristotle, who says at the opening of his account of wind, in *Mete.* 1.13, that on this subject he knows of nothing presented by earlier thinkers that could not have been said by any chance man (349a12–16). Anaximenes’ “unknown rush of some sort” leaves much to be desired. The views of the others, however, could be parts of more sophisticated theories, the bulk of which no longer exist: the evidence is too sparse to allow for an assessment of Aristotle’s claim (though in the absence of evidence we at least have no reason to question it). He goes on to refer to the view(s) that wind is moving air, that wind and water are of the same nature (in certain respects), and that all the winds are one (349a16–26).<sup>43</sup> He then reaffirms his contempt for these theories, claiming that the views of the many, arrived at without inquiry, are better than the conclusions of these

38 On the precise nature of the attention Aristotle *does* give his predecessors in the *Meteorology*, see Wilson (2013, 25–34).

39 Ἀναξίμανδρος ἄνεμον εἶναι ῥύσιν ἀέρος τῶν λεπτοτάτων ἐν αὐτῷ καὶ ὑγροτάτων ὑπὸ τοῦ ἡλίου κινουμένων ἢ τηκομένων (12 A 24 DK = Aëtius 3.3.1, Stob. 1.29.1).

40 Ἀναξίμενης δὲ ἐξ ὕδατος καὶ ἀέρος γίνεσθαι τοὺς ἀνέμους βούλεται καὶ [τῇ] ῥύμῃ τινὶ ἀγνώστῳ βιαιῶς φέρεσθαι καὶ τάχιστα ὥς τὰ πτηνὰ πέτεσθαι (13 A 19 DK = Gal. in *Hp. Hum.* 3.16, p. 395 Kühn).

41 *Democritus ait, cum in angusto inani multa sint corpuscula, quae ille atomos vocat, sequi ventum; at contra quietum et placidum aeris statum esse, cum in multo inani pauca sint corpuscula* (NQ 5.2 = 68 A 93a DK).

42 On the connection between wind and health, see e.g. *Hp. Aër* 4–6.

43 Both Alexander of Aphrodisias (in *Mete.* CAG vol. 3.2 pp. 53.25–54.2) and Olympiodorus (in *Mete.* CAG vol. 12.2 p. 171.28–34), in commenting on this passage, refer to and quote a line from the Hippocratic *On Breaths* (namely ἄνεμος γὰρ ἐστὶ ἡέρος ῥεῦμα καὶ χεῦμα, 3.2). Diels saw a connection between this work and both Anaximander (12 A 24 DK) and Diogenes of Apollonia (64 C 2 DK).



thinkers, which *are* supposed to be the result of inquiry (349a26–30).<sup>44</sup> It would seem Theophrastus does agree with Aristotle on this, in light of his lack of engagement with earlier thinkers, combined with the attention given in *On Winds* to proverbs and other popular *endoxa*.<sup>45</sup>

In contrast to what I see as the lack of evidence of engagement with or influence of previous (non-Peripatetic) thinkers, Hünemörder (2006f) remarks: “In the 5th cent. BC, Thrasyalces of Thasos postulated that these currents arose from the evaporation of water by the sun’s heat, and that this was why Boreas was cold, arising as it did in the regions of frosty chill, and why Notus was warm.” He then suggests an influence on Theophrastus, who, he asserts, “modified Thrasyalces’ theory inasmuch as he limited the effect of the Sun to merely generating the movement of the winds through its warmth (Theophr. *De ventis* 15). The actual origin of the winds, he proposed, were local emanations (αὔραι/*aúrai*; *ibid.* 24–26).” Even setting aside the fact that this is (in my view) an inaccurate description of Theophrastus’ account of winds, breezes, and emanations, these are remarkable claims.<sup>46</sup> For all we know about Thrasyalces is that he had a theory of the flooding of the Nile—which came ultimately from Homer, and which influenced Aristotle—and that he thought (like Homer, Strabo says) that there are really only two primary winds, Boreas and Notos, and that the others are variations or deviations of these. (See Strabo 17.1.5 & 1.2.21 = 35 A 1–2 DK.)

So with possible minor exceptions, I think the only noteworthy influence on Theophrastus’ account of wind is Aristotle’s *Meteorology*.<sup>47</sup>

There has been a fair amount of discussion of, but no scholarly consensus on, the differences between Aristotle’s and Theophrastus’ theories of wind. For a brief account of the main issues involved, and of the different scholarly positions taken, see Sharples (1998, 146–152). For good comparative summaries of the two, or good summaries of Theophrastus on wind which include comparisons with Aristotle along the way, see Strohm (1937, 251–268), Steinmetz (1964, 25–60), Coutant & Eichenlaub (1974, 1455–1456) and (1975, xxxvi–xli), and

44 But on the (to my mind possible) influence of earlier thinkers on Aristotle’s conception of meteorological phenomena (including wind), see Wilson (2013, chs. 1 & 3); and see above n. 38.

45 See below pp. 132–133.

46 See my commentary on §§15 & 24–26.

47 Aristotle’s account of wind is found in *Mete.* 1.13 & 2.4–6, though it depends on discussion, earlier in that work, of the basic nature and causes of meteorological phenomena. For an excellent description of Aristotle’s account of wind, see Wilson (2013, ch. 10).

Lettinck (1999, 156–161).<sup>48</sup> I find it difficult to gauge the differences between Aristotle and Theophrastus on wind, and just how different they are, (1) because of the difficulty in some cases in identifying precisely various aspects of Aristotle's accounts of meteorological phenomena;<sup>49</sup> (2) because of the epitomized nature of Theophrastus' *Metarsiology*, which moreover exists only in translation; and in connection with that, (3) because of the different aims of Aristotle (providing a general account of wind) and Theophrastus (explaining the different characteristics of the various winds).<sup>50</sup> This third difference is described in *On Winds* 1, and discussed at length in the commentary. I will here sketch what I see as the likely differences between Aristotle and Theophrastus on the role of exhalations in their accounts of wind.<sup>51</sup> Other possible or purported differences are discussed in the commentary at appropriate places. The most significant of these is Theophrastus' *apparent* reliance on the existence of a void—which Aristotle goes to some lengths to reject (*Phys.* 4.6–9)—to explain the movement of wind. (See below pp. 109–111.)

In *Mete.* 2.4 Aristotle says that “there are two kinds of exhalation ..., the one moist, the other dry. The one is called vapor, the other, which has no general name, is ... as something like smoke”<sup>52</sup> (359b28–32). These exhalations are drawn by the sun from the moisture on the surface of the earth and from the fire and heat within the earth (360a5–8). He goes on to explain that moist exhalation is the cause of rain, whereas dry exhalation is the cause—the origin and nature (ἀρχὴ καὶ φύσις)—of wind (360a10–13).<sup>53</sup>

Theophrastus rarely refers to exhalations by name, the word ἀναθυμίασις appearing twice in all of *On Winds* (§§ 15 & 23). And though he does not distinguish dry and moist exhalations, the one he sees as operative in explaining wind is clearly a *moist* exhalation. In both §§ 15 and 23, the exhalation he describes is associated with moisture (e.g. § 15, “the raised up moisture”)—and it is clear throughout that moist air (vapor) is central to his conception

48 Taub (2003, ch. 3) is a survey of Aristotle and Theophrastus on meteorology more broadly.

49 But see now Wilson (2013).

50 I believe these are complementary aims, as I make clear in my commentary on § 1.

51 Again, it is difficult to identify such differences in part because it is difficult to identify what each philosopher's own view of the exhalations are, and especially Theophrastus'. On Aristotle's account of the two exhalations, see Wilson (2013, ch. 3).

52 ἔστι γὰρ δὴ εἶδη τῆς ἀναθυμιάσεως, ὥς φαμεν, ἡ μὲν ὑγρὰ ἡ δὲ ξηρὰ· καλεῖται δ' ἡ μὲν ἀτμίς, ἡ δὲ τὸ μὲν ὅλον ἀνώνυμος, τῷ δ' ἐπὶ μέρους ἀνάγκη χρωμένους καθόλου προσαγορεύειν αὐτὴν ὅλον καπνόν.

53 τούτων δ' ἡ μὲν ὑγροῦ πλέον ἔχουσα πλῆθος ἀναθυμιάσις ἀρχὴ τοῦ ὑομένου ὕδατος ἐστίν, ὥσπερ εἴρηται πρότερον, ἡ δὲ ξηρὰ τῶν πνευμάτων ἀρχὴ καὶ φύσις πάντων.

of wind. Theophrastus, in *Metars.* 13.6–9, refers to vapor rising because of its lightness, which is owing to the dominance of the fine over the dense. Sharples (1995, 148) takes this as evidence of the contribution of the dry exhalation. But I think it much more likely that Theophrastus was (in the original) referring to the amount of moisture compacted in the air (vapor being moist air), and not to dry (as opposed to moist) exhalation. This is not to say that Theophrastus rejected the notion of dry exhalation entirely. First, it clearly has a role in other works of his (see *Lap.* 50 and *Ign.* 7 & 30). Further, given the central role of heat and the sun in *On Winds*, it is quite possible that Theophrastus had in mind something like Aristotle's dry exhalations when discussing heat, though he did not refer to them as such (see e.g. § 22, with commentary).

I here quote a passage from § 2—arguably the closest thing in *On Winds* to a summary of his account of the mechanics of wind—to indicate how the lack of an explicit account of wind *per se* from Theophrastus makes comparisons with Aristotle difficult:

For both (Boreas and Notos) are great and blow most of the time, through most of the air being compressed towards the north and the south, as they are perpendicular to the motion of the sun from risings to settings. For (the air) is thrust out from here by the power of the sun; and this is why the air is thickest and cloudiest. Now as a lot (of air) collects on each (side), the flow often becomes both greater and more continuous, from which (processes) come their magnitudes and the continuity and the quantity and other such (attributes).

First, how close to or far from Aristotle's conception of wind this is depends on whether the air being pushed by the moving sun is air drawn up by the sun's heat in the form of vapor—i.e. an exhalation. If it is (as I suspect it is), then Theophrastus' theory is more of a variation on Aristotle's. If however the pushed air is not vapor, then this is a rather distinct conception of wind (or at least of Boreas and Notos). Second, Theophrastus is here explaining the characteristics of the two paradigm winds: Boreas and Notos. But another major wind, Zephyrus, is formed differently, and the formation of local breezes blowing off of rivers is even more distinct. This makes comparison difficult, as we do not always know how precisely Aristotle would have applied his basic theory to explain the various winds, and (as we have seen) we usually do not know what different roles Theophrastus thinks exhalations have in the explanations of the various winds. In the commentary, I occasionally shed a dim light on some of these problems.

#### 4 The Structure of *On Winds*

I tend to agree with Gigon (*contra* Howald 1920) that *On Winds* was not an exoteric work meant for the public.<sup>54</sup> And although I am not as confident as Steinmetz that it is a set of discernible lectures,<sup>55</sup> I do think it may well have been (or been based on) his own lecture notes.<sup>56</sup> For the rest, I would merely add that *On Winds* seems to be an unpolished, and perhaps incomplete, scientific treatise (likely meant for Theophrastus' fellow Peripatetics). I think the structure of the work tends to support this conclusion.

With one exception, the medieval manuscripts include no divisions within the text.<sup>57</sup> The exception is Neapolitanus III D 1 (= ms. N), a beautiful copy, the scribe of which used red ink to mark the beginning of nearly 250 divisions—virtually every new sentence (but not quite). Turnebus began making 'chapter' divisions in the margins of his copy of Vascosanus, marking them with Arabic numerals; but he gave up the task before reaching the midway point: his last division (no. 26) comes in the middle of what is now § 22. I sympathize with his resignation or defeat, so to speak, in the face of a text whose organization is elusive. Nevertheless, I believe a rough organization or structure of *On Winds* can be discerned, and I present my thoughts on this here.

The modern chapter divisions in *On Wind* are solely the creation of Schneider.<sup>58</sup> Sometimes they are quite sensible, but often they are not. Whatever one thinks of them, they have become standard, and are the main means of referring to passages in this work—along with the new line numbers based on my edition of the text. I have embedded these chapter numbers into the body of the text and translation, bold and in parentheses; but I have further used indentations to indicate what I believe are the major divisions in or sections of this work.<sup>59</sup>

54 Gigon 1937, iii. He adds: *Es ist ein Stück "Lehrschrift"*.

55 See below note 59, and note the opening of his discussion of *On Winds* (1964, 25): *Der erste Satz dieser Vorlesungsreihe [= lecture series] verrät, daß die Untersuchung über die φύσις der Winde, ... in einer früheren Vorlesung, nämlich der Meteorologie, behandelt worden ist.* Cf. Gottschalk (1967, 20–21).

56 Possible evidence for this: the unique appearance of the second person (εὐρήσεις) in § 44.

57 Haslam (1986, 172) notes of POxy 3721: "A crude paragraphus at iii 13/14 [= § 7.53] was perhaps added later." But even if this was not added later, and there were other such breaks in the papyrus text, there would be no reason to assume that these divisions go back to Theophrastus.

58 Bonaventura (1593) divides *On Winds* into 63 sections, but they rarely match up exactly with Schneider's 62 chapters (and they often make more sense).

59 I follow Wimmer (1866, not 1862), in method of presentation if not in the details of

Here is how I conceive of the structure of *On Winds*:

- § 1: The subject matter of this treatise
- §§ 2–6.45: Basics; Boreas and Notos as paradigm winds
- §§ 6.46–11.82: More on Boreas and Notos
- §§ 11.83–14: The Etesians
- §§ 15–18: More on the influence of the sun
- §§ 19–25: The temperature of the winds; on hot and cold
- §§ 26–28: The influence of location on the direction of winds
- §§ 29–34: The influence of location on the strength and speed of winds
- §§ 35–36: Signs of wind
- §§ 37–45: The particular characteristics of Zephyrus (and Caecias)
- §§ 46–55: Assorted facts about and issues concerning various winds<sup>60</sup>
  - § 46: Peculiarities regarding the temperature of Boreas and Notos
  - §§ 47–48.344: Why winds blow from the east in winter and at dawn etc.
  - § 48.345–347: Why Notos is accustomed to blow at the time of the Dog-Star
  - §§ 49–50.359: Why the nighttime Boreas stops blowing before three days have passed
  - § 50.360–365: Why Notos blows after frost
- § 51: On Lips and Argestes winds blowing in Cnidus and Rhodes
- §§ 52–53.380: On the order of winds in certain locations

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his organization (which I find puzzling). He indicates Schneider's chapters with Arabic numerals, in parentheses, but further divides the text, via indentations and Roman numerals, into larger sections: I (1–7), II (8–14), III (15–25), IV (26–31), V (32–34), VI (35–36), VII (37–46), VIII (47–50), IX (51–62). And cf. Steinmetz's organization according to *Vorlesungsthemen* (1964, 25–53), which is often similar to mine: 1. *Rückführung der Eigenschaften der Winde auf zwei Grundgegebenheiten: Ausgangspunkt und Abstand vom Ausgangspunkt* (§§ 1–6.45); 2. *Lösung von Einzelproblemen, die der Aitiologie des Boreas und Notos zu widersprechen scheinen* (§§ 6.46–9); 3. *Die Verteilung von Nord- und Südwind auf die Jahreszeiten* (§§ 10–12); 4. *Wechsel der Wind- und Wetterverhältnisse in größeren Zeiträumen* (§§ 13–14); 5. *Der Einfluß des täglichen Umlaufs der Sonne auf die lokalen Windverhältnisse* (§§ 15–18); 6. *Die Temperatur des Windes* (§§ 19–22); 7. *Einfluß lokaler Verhältnisse auf die Temperatur des Windes* (§§ 23–25); 8. *Der Einfluß lokaler (topographischer) Gegebenheiten auf die Richtung des Windes* (§§ 26–28); 9. *Der Einfluß lokaler Gegebenheiten auf die Stärke des Windes* (§§ 29–34); 10. *Vorzeichen des Windes* (§§ 35–36); 11. *Kaikias und Zephyros* (§§ 37–46); 12. *Einzelfragen und Wetterregeln* (§§ 47–55); 13. *Wirkung der Winde auf die ζῶα, die Pflanzen und die ἄψυχα* (§§ 56–59); 14. *Nachträge* (§§ 60–62).

60 I have also used indentations to indicate the following sub-divisions or sub-sections.

§§ 53.381–55.396: On the collision of winds

§ 55.397–403: On the indeterminate nature of winds at the rising and setting of Orion

§§ 56–58: The effects of winds on human life

§§ 59–61: A list of difficult issues requiring further inquiry

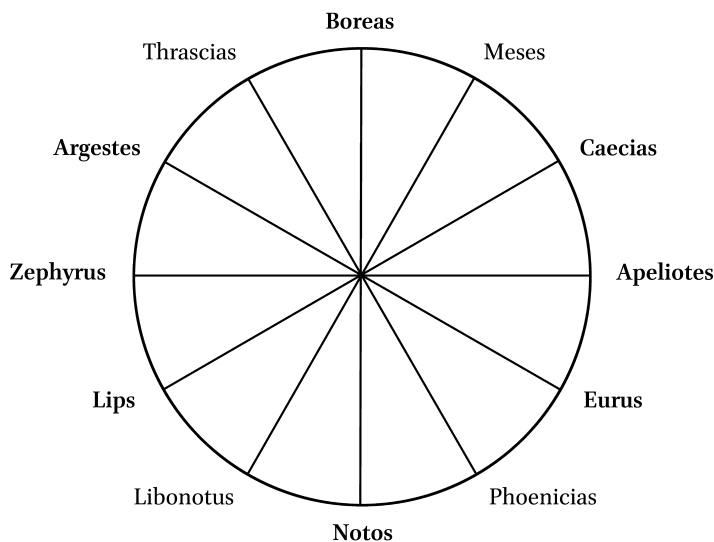
§ 62: The names of the winds

Justifications for these divisions come in the commentary.

## 5 An Aristotelian Windrose

This windrose is derived from Aristotle, Theophrastus, and other Peripatetic treatments of wind. The names in bold refer to those winds explicitly mentioned by Theophrastus in *On Winds*. (Alternative names that he mentions, however, are not provided.)<sup>61</sup>

For further discussion of windroses, both Aristotelian and those conceived of by others in antiquity, see: Thompson (1918), Böker (1958b), Coutant & Eichenlaub (1975, l–liii), and Davis (2009, ch. 4, with the tables on pp. 245–248 and the figures on pp. 272–274).



61 If one accepts a well-regarded conjecture in § 43, there would be one mention of Thrascias in *On Winds*, in which case it too should be in bold here.

## 6 Abbreviations

### *Aristotle (Arist.) & the Corpus Aristotelicum*

<i>APo.</i>	<i>Analytica posteriora</i> = <i>Posterior Analytics</i>
<i>APr.</i>	<i>Analytica priora</i> = <i>Prior Analytics</i>
<i>Aud.</i>	<i>De audibilibus</i> = <i>On Things Heard</i>
<i>Cat.</i>	<i>Categoriae</i> = <i>Categories</i>
<i>DC</i>	<i>De caelo</i> = <i>On the Heavens</i>
<i>Div.Somn.</i>	<i>De divinatione per somnum</i> = <i>On Divination in Sleep</i>
<i>EE</i>	<i>Ethica Eudemia</i> = <i>Eudemean Ethics</i>
<i>EN</i>	<i>Ethica Nicomachea</i> = <i>Nicomachean Ethics</i>
<i>GA</i>	<i>De generatione animalium</i> = <i>Generation of Animals</i>
<i>GC</i>	<i>De generatione et corruptione</i> = <i>On Generation and Corruption</i>
<i>HA</i>	<i>Historia animalium</i> = <i>History of Animals</i>
<i>Inun. Nili</i>	<i>De inundatione Nili</i> = <i>On the Flooding of the Nile</i>
<i>Juv.</i>	<i>De juventute</i> = <i>On Youth, Old Age, Life and Death, and Respiration</i>
<i>Metaph.</i>	<i>Metaphysica</i> = <i>Metaphysics</i>
<i>Mete.</i>	<i>Meteorologica</i> = <i>Meteorology</i>
<i>Mu.</i>	<i>De mundo</i> = <i>On the Cosmos</i> <sup>*62</sup>
<i>MXG</i>	<i>De Melisso, de Xenophane, de Gorgia</i> = <i>On Melissus, Xenophanes, and Gorgias</i> *
<i>PA</i>	<i>De partibus animalium</i> = <i>Parts of Animals</i>
<i>Phys.</i>	<i>Physica</i> = <i>Physics</i>
<i>Pr.</i>	<i>Problemata</i> = <i>Problems</i>
<i>Rhet.</i>	<i>Rhetorica</i> = <i>Rhetoric</i>
<i>Top.</i>	<i>Topica</i> = <i>Topics</i>
<i>VS</i>	<i>De ventorum situ</i> = <i>On Positions and Names of the Winds</i> *

### *Theophrastus (Thphr.)*

<i>CP</i>	<i>De causis plantarum</i> = <i>Causes of Plants</i>
<i>HP</i>	<i>Historia plantarum</i> = <i>History of Plants</i>
<i>Ign.</i>	<i>De igne</i> = <i>On Fire</i>
<i>Lap.</i>	<i>De lapidibus</i> = <i>On Stones</i>
<i>Lass.</i>	<i>De lassitudine</i> = <i>On Fatigue</i>
<i>Metaph.</i>	<i>Metaphysica</i> = <i>Metaphysics</i>

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62 An asterisk indicates that the work is generally considered inauthentic.

<i>Metars.</i>	<i>Metarsiologica = Metarsiology</i>
<i>Od.</i>	<i>De odoribus = On Odors</i>
<i>Pisc.</i>	<i>De piscibus = On Fish</i>
<i>Sens.</i>	<i>De sensu = On Sense Perception</i>
<i>Sign.</i>	<i>De signis = On Signs*</i>
<i>Sud.</i>	<i>De sudore = On Sweat</i>
<i>Vent.</i>	<i>De ventis = On Winds</i>
<i>Vert.</i>	<i>De vertigine = On Dizziness</i>

For other ancient authors and works, I have used the abbreviations in LSJ and/or *OCD*<sup>3</sup>.

### *Abbreviations of Modern Works*

<i>BDAG</i>	F. Montanari et al. <i>The Brill Dictionary of Ancient Greek</i> . Leiden: Brill, 2015
<i>CAG</i>	<i>Commentaria in Aristotelem Graeca</i> . Berlin: Reimer
<i>DK</i>	H. Diels and W. Kranz., eds. <i>Die Fragmente der Vorsokratiker</i> , 6th ed. Berlin: Weidmann, 1952
<i>FHS&amp;G</i>	William W. Fortenbaugh, Pamela M. Huby, Robert W. Sharples, and Dimitri Gutas, eds., <i>Theophrastus of Eresus: Sources for his Life, Writings, Thought &amp; Influence</i> , 2 vols. Leiden: Brill, 1992
<i>LSJ</i>	H.G. Liddell, R. Scott, and H.S. Jones, eds. <i>Greek—English Lexicon</i> , rev. 9th ed. Oxford: Oxford University Press, 1996
<i>OCD</i> <sup>3</sup>	S. Hornblower and A. Spawforth eds., <i>The Oxford Classical Dictionary</i> , 3rd ed. Oxford: Oxford University Press, 2003
<i>Rose</i>	Valentin Rose, <i>Aristotelis qui ferebantur librorum fragmenta</i> . Leipzig: Teubner, 1886
<i>TLG</i>	<i>Thesaurus Linguae Graecae</i> ( <a href="http://www.tlg.uci.edu">www.tlg.uci.edu</a> )

## 7 Sigla

### *Papyri fragmentum*

Π	Oxyrhynchus papyrus 3721, 2nd c. AD (§§ 4.32–7.58)
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*Codex ex quo alii pendent*

A [P/16]<sup>63</sup> Vaticanus gr. 1302, circa 1300 [119<sup>v</sup>–130<sup>r</sup>]

*Codices alii qui in hac editione citantur*

B [X/19] Bernensis gr. 402, circa 1480 [42<sup>r</sup>–53<sup>v</sup>]<sup>64</sup>  
 D [Q/14] Mediol. Ambrosianus P 80 sup., ante 1427 [45<sup>v</sup>–58<sup>r</sup>]  
 D† D (legi non potest A)  
 H [D/18] Leid. Vossianus gr. Q 25, circa 1487 [54<sup>r</sup>–68<sup>v</sup>]  
 M [R/12] Venet. Marcianus gr. 260, 1442–1457 [125<sup>r</sup>–140<sup>r</sup>]  
 N [E/25] Neapolitanus III D 1, 1497 [117<sup>v</sup>–153<sup>r</sup>]  
 R [I/13] Vat. Palatinus gr. 162, 1442–1457 [75<sup>v</sup>–84<sup>r</sup>]  
 r [L/21] Vat. Reginensis gr. 123, circa 1500 [311<sup>v</sup>–322<sup>r</sup>]  
 S [Z/15] Lond. Brit. Mus. Add. 5113, 1480–1487 [48<sup>r</sup>–61<sup>r</sup>]  
 V [O/30] Vaticanus gr. 1305, 1469–1477 [12<sup>v</sup>–16<sup>v</sup>]  
 V<sup>a</sup> [M/17] Vat. Urbinas gr. 108, ante 1427 [128<sup>r</sup>–133<sup>r</sup>]  
 z [U/23] Parisinus gr. 2277, circa 1479 [37<sup>v</sup>–50<sup>v</sup>]

*Editio princeps*

Ald.<sup>65</sup> Editio Aldina, 1497 [245<sup>v</sup>–254<sup>r</sup>]

*Aliae editiones et adnotationes ad textum*

Anon. Marginalia (author unknown) in a copy of Vascosanus (1551) in the Leiden University Library<sup>66</sup>

63 Scholars have used two different sets of letters to indicate these manuscripts—and on top of that, Burnikel has numbered them. I follow the system used in the other Project Theophrastus *opuscula* volumes (e.g. Fortenbaugh et al. 2003), not the one adopted by e.g. Coutant & Eichenlaub (1975), which for convenience I include, in brackets, along with the Burnikel numbers.

64 With two possible exceptions, every correction in ms. B is the work of a second hand. So in the *apparatus criticus*, wherever I add to 'B' the superscript abbreviations 'pc' (*post correctiones*), 'mg' (*in margines*), or 'sl' (*supra lineam*), take there to be an implicit *secunda manus* as well.

65 Number 20 in Burnikel's system.

66 This is a different copy of Vascosanus (1551) from the one mentioned below and designated 'Turn.' For details, see above pp. 8–9.

Bon.	Bonaventura (1593)
Burn.	Burnikel (1974)
Cout.	Coutant (in Coutant & Eichenlaub 1975)
Furl.	Furlanus (1605) <sup>67</sup>
Gigon	Gigon (1937)
Gryn.	Grynaeus (1541)
Heins.	Heinsius (1613)
Schn. <sup>1</sup>	Schneider, vol. 1 (1818)
Schn. <sup>2</sup>	Schneider, vol. 2 (1818)
Schn. <sup>4</sup>	Schneider, vol. 4 (1818)
Schn. <sup>5</sup>	Schneider, vol. 5 (1821)
Sider	David Sider <sup>68</sup>
Stein.	Steinmetz (1964)
Vasc.	Vascosanus (1551)
Turn.	Marginalia of A. Turnebus in a copy of Vascosanus (1551) in the Leiden University Library
Wildberg	Christian Wildberg <sup>69</sup>
Wim.	Wimmer (1862) & Wimmer (1866) <sup>70</sup>
Wood	Wood (1894)

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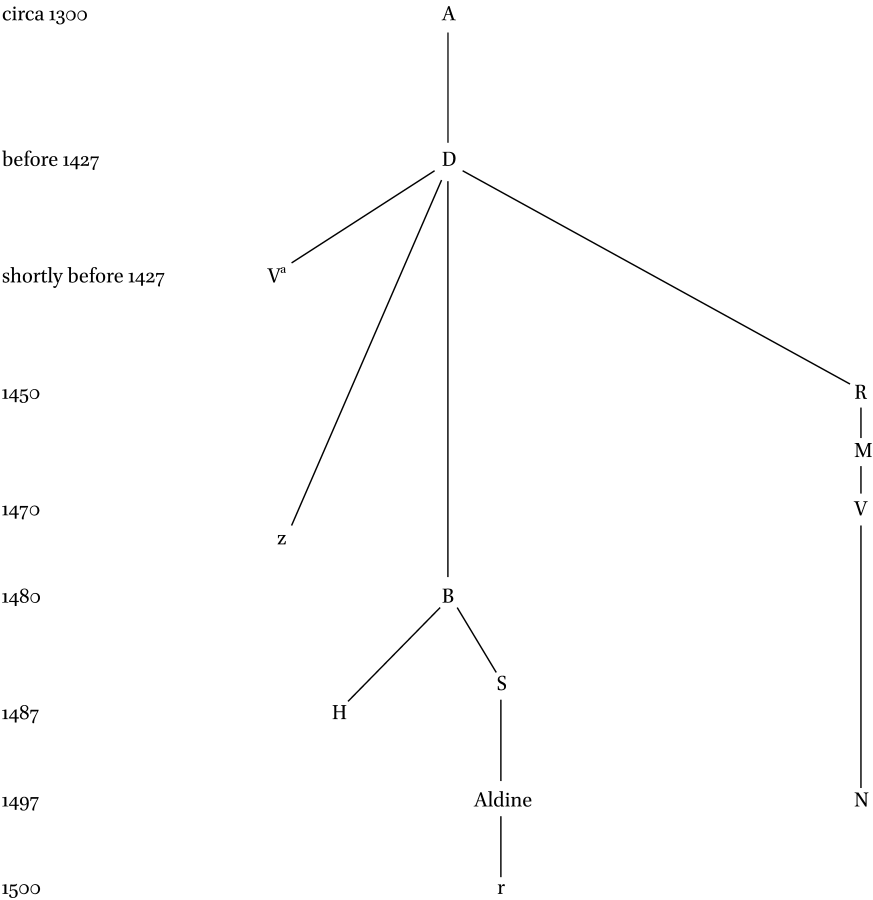
67 'Furl.' + page number indicates a reference to his commentary, which follows his edition of the text.

68 Personal communication: comments on a draft of my edition of the text.

69 Personal communication: comments on a draft of my edition of the text.

70 Although there are minor differences between these two editions of the *opuscula* of Theophrastus, in the case of *On Winds* I have observed only one variation (and that a clear typographical error).

8 Sigla Codicum<sup>71</sup>



71 I simply copy Burnikel (1974, 90), though he marks (with a Z) possible lost manuscripts (e.g. between D and R). As my aim is merely to give a rough overview of the relationships among the extant manuscripts, I leave those out.



## *Text and Translation*



## Θεοφράστου περί ανέμων

(1) Ἡ τῶν ανέμων φύσις, ἐκ τίνων μὲν καὶ πῶς καὶ διὰ τίνας αἰτίας γίνεται, τεθε-  
ώρηται πρότερον· ὅτι δ' ἐκάστοις αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα κατὰ  
λόγον ἀκολουθεῖ, πειραῖσθαι χρή λέγειν, οἷσπερ σχεδὸν διαφέρει ἀλλήλων. αἱ γὰρ  
διαφοραὶ περὶ ταῦτα καὶ ἐν τούτοις· οἷον μέγεθος, μικρότης, ψυχρότης, θερμότης,  
ἀπλῶς τὸ χειμερινὸν ἢ εὐδαινὸν καὶ ὑέτιον ἢ αἶθριον· ἔτι δὲ τὸ πολλάκις ἢ ὀλιγάκις, 5  
καθ' ὥραν ἢ τὸ [μῆ] αἰετνεῖν, καὶ συνεχεῖς καὶ ὁμαλεῖς ἢ διαλείποντας καὶ ἀνω-  
μαλεῖς· καὶ ὅλως ἂ συμβαίνει περὶ τὸν οὐρανὸν ἢ περὶ τὸν ἀέρα καὶ τὴν γῆν καὶ τὴν  
θάλατταν διὰ τὴν πνοήν. ὥς γὰρ [ἂν] ἀπλῶς εἰπεῖν ἐν τούτοις καὶ περὶ ταῦτα τυγ-  
χάνουσιν αἱ ζητήσεις, ἐν οἷς καὶ τὰ περὶ τῶν ζώων καὶ φυτῶν ἐμπεριλαμβάνεται.

(2) ἐπεὶ δ' ἐκάστου τόπος ἴδιος ὑπόκειται, καὶ τοῦθ' ὥσπερ τῆς οὐσίας, ἀπὸ 10  
τούτων ὥς ἀπλῶς εἰπεῖν καὶ αἱ διαφοραὶ καὶ αἱ δυνάμεις ἐκάστου εἰσὶν· οἷον πρῶτον  
ἢ τοῦ μεγέθους καὶ σμικρότητος, καὶ ψυχρότητος καὶ θερμότητος, καὶ πλήθους  
καὶ ὀλιγότητος, καὶ τῶν ἄλλων τῶν πλείστων. ὑπάρχει δὲ ταῦτα τὰ δ' ἐναντία  
τοῖς ἐναντίοις, ἀμφοτέρω δ' εὐλόγως· οἷον τῷ βορέᾳ καὶ τῷ νότῳ. μεγάλοι μὲν γὰρ  
ἄμφω καὶ πλείστον χρόνον πνέουσιν, διὰ τὸ συνωθεῖσθαι πλείστον ἀέρα πρὸς ἄρκτον 15  
καὶ μεσημβρίαν, πλαγίων ὄντων πρὸς τὴν τοῦ ἡλίου φορὰν τὴν ἀπ' ἀνατολῶν ἐπὶ  
δυσμάς. ἐξωθεῖται γὰρ ἐνταῦθα τῇ τοῦ ἡλίου δυνάμει· διὸ καὶ πυκνότητος καὶ  
συννεφέστατος ὁ ἀήρ. ἀθροισζομένου δ' ἐφ' ἐκάτερα πολλοῦ, καὶ πλείων ἢ ῥύσις καὶ  
συνεχεστέρα γίνεται πλεονάκις, ἀφ' ὧν τὰ τε μεγέθη καὶ ἡ συνέχεια καὶ τὸ πλῆθος  
αὐτῶν καὶ ἄλλο τοιοῦτόν ἐστιν. (3) ἡ δὲ ψυχρότης καὶ θερμότης ἐμφανέσταται 20  
δόξαιεν ἂν εἶναι διὰ τοὺς τόπους γινόμεναι· ψυχρὰ γὰρ τὰ πρὸς ἄρκτον, τὰ δὲ  
πρὸς μεσημβρίαν ἁλειονά. τὸ δ' ἀφ' ἐκατέρου ῥέον ὁμοῖον· ἅμα γὰρ καὶ ἦττον  
ἐν ἀναπεπταμένῳ τῷ σύγγειυ καὶ ἐν ἀναπεπταμένῃ φορᾷ. τὸ δὲ διὰ στενοῦ  
καὶ σφοδρωτέως φερόμενον ψυχρότερον, (τὸ δ') εἰς τε τὸ πόρρω διακεκαυμένον

4 ante μικρότης add. καὶ B 5 αἶθριον Ald. : αἰθέριον A 6 μῆ A, seclusi : μὴν V<sup>a</sup> 7 περὶ D† 8 ἂν A, Turn. secl. 9 ἐμπεριλαμβάνεται A: περιλαμβάνεται Gryn. 11 τούτων A: τούτου Turn. || ὥς Turn. : οἷς A || ἐκάστου Burnikel p. 24 : ἕκαστον A : (αἱ καθ') ἕκαστον Wim. : ἐκάστων Gigon || εἰσὶν Gigon : εἰπεῖν A, secl. Schn.<sup>4</sup> 13 ταῦτα Wim. : ταῦτα A : ante ταῦτα add. τοῖς μὲν Gigon 16 ἐπὶ A : πρὸς S 17 ἐξωθεῖται Turn. : ἐξωθεῖσθαι A 18 συννεφέστατος Turn. : συνεφέστατος A : συνεχέστατος V<sup>a</sup> 19 post γίνεται add. καὶ Gigon || ἀφ' Turn. : ἐφ' A 22 ἀφ' ἐκατέρου Turn. : ἐφ' ἐκάτερον A : ἀφ' ἐκατέρων Anon. || post ὁμοῖον lac. indic. Gigon 23 ἐν ἀναπεπταμένῳ Gigon : ἐν ἀναπεπταμένῳ A (om. ἐν z) : ἀναπεπταμένον Furl. || τῷ A : τὸ Furl. || ἐν ἀναπεπταμένῃ φορᾷ A : μὴ ἀναπεπταμένη ἢ φορὰ Wim. 24 σφοδρωτέως A : σφοδρωτέρως D || ψυχρότερον A : ψυχρότερα B || τῷ δὲ εἰς τε τὸ H (secl. τε Schn.<sup>1</sup>) : εἰς τε τὸ A || διακεκαυμένον A : διακεχυμένον Schn.<sup>1</sup> ex Pr. 26.52

tit. Θεοφράστου περί ανέμων] DL 5.42, Alex. Aph. in Mete. (CAG 3.2 p. 97.10–11) 14–17 οἷον τῷ βορέᾳ καὶ τῷ νότῳ ... ἐπὶ δυσμάς] Pr. 26.35b

## Theophrastus' *On Winds*

(1) The nature of the winds—out of what and how and through what causes it comes to be—has been considered earlier; but it is (now) necessary to attempt to explain why for each (of the winds) the capacities and in general the accompanying attributes accompany it according to reason—the very (attributes) by which, by and large, each one differs from the others. For the differentiae are concerning the following and (consist) in these: e.g., greatness, smallness, cold, heat, basically whether stormy or calm and rainy or clear; and further, whether (blowing) frequently or infrequently, according to season or [not] always blowing; and continuous and regular, or intermittent and irregular; and in general, what happens in the heavens or in the air and the earth and the sea owing to the blowing (of winds). Indeed, speaking generally, the inquiries turn out to be into these (issues) and concern those in which animals and plants are included as well.

(2) Since a particular location underlies each (wind), and this (location) belongs as it were to its essence, from these (locations), generally speaking, come both the differences and the capacities of each (wind): e.g., in the first place, the (difference) in greatness and smallness, heat and cold, frequency and infrequency, and in very many other things. Now the same (attributes) and the opposite ones are present in the opposite (winds), and it is reasonable that both are: e.g., in Boreas and in Notos. For both are powerful and blow most of the time, through air being compressed towards the north and the south more than elsewhere, as they are perpendicular to the motion of the sun from risings to settings. For (the air) is thrust out there by the power of the sun; and this is why the air is densest and cloudiest. Now as a lot (of air) collects on each (side), the flow frequently becomes both more massive and more continuous, from which come their magnitudes and continuity and quantity and other such (attributes). (3) But the cold and heat would seem to be most manifest coming to be on account of their locations: for the (locations) to the north are cold, whereas those to the south are warm. The (wind) flowing from each (location), however, is similar: for it is simultaneously less in the open by virtue of its proximity (sc. to the north or to the south) *and* (it flows) in an open motion. Now the (wind) traveling through a narrow (passage) and so more intensely is colder, (but)

μᾶλλον καὶ ἀνειμένον. διὸ καὶ ὁ νότος ἐκεῖ ψυχρότερος ἢ παρ' ἡμῖν· ὥς δέ τινες 25  
 φασὶ καὶ μᾶλλον ἢ βορέας. ποιεῖ δέ τι καὶ ἡ μεταβολὴ πρὸς φαντασίαν, ἄλλει(νου)  
 προϋπάρχοντος τοῦ τόπου. (4) καὶ τοῦτο μὲν κοινὸν ὥς εἰπεῖν πᾶσιν. τὸ δὲ ὑέτιον  
 καὶ αἶθριον ἑκατέρου καὶ τὸ κυματῶδες καὶ ἄκυμον καὶ πυκνὸν καὶ συνεχές καὶ  
 ἀνωμαλές καὶ ὁμαλόν, ἔτι δὲ τὸ μέγεθος τοῦ μὲν ἀρχομένου, τοῦ δὲ λήγοντος, πρὸς 30  
 τὴν ἀπόστασιν τῶν τόπων ἀποδίδεται μᾶλλον. ὅθεν μὲν γὰρ ἕκαστος πνεῖ, παρ'  
 ἐκείνοις αἶθριος· ὅπου δ' ἐπωθεῖ τὸν ἀέρα, παρ' ἐκείνοις δ' ἐπινεφῆς καὶ ὑέτιος.  
 διόπερ ὁ μὲν βορέας καὶ μᾶλλον οἱ ἐτησίαι τοῖς πρὸς μεσημβρίαν καὶ ἀνατολὴν  
 οἰκοῦσιν ὑέτιοι· ὁ δὲ νότος (καὶ) ὥστε ἀπλῶς εἰπεῖν οἱ ἐξ ἐκείνου τοῦ τόπου  
 πνέοντες τοῖς πρὸς ἄρκτον. (5) οὐ μικρὰ δ' ἐνταῦθα ἀλλὰ μεγίστη ῥοπὴ τὸ τὰς 35  
 χώρας ὕψος ἔχειν· ὅπου γὰρ ἂν προσκόψῃ τὰ νέφη καὶ λάβῃ στάσιν, ἐνταῦθα καὶ  
 ὕδατος γένεσις. διὸ καὶ τῶν σύνεγγυς τόπων, ἄλλοι παρ' ἄλλοις ὑέτιοι τῶν ἀνέμων.  
 ἀλλὰ περὶ μὲν ὑδάτων ἐν ἐτέροις εἴρηται διὰ πλειόνων. ἐκ τῆς δ' αὐτῆς αἰτίας  
 καὶ ὁ μὲν βορέας εὐθὺς ἀρχόμενος μέγας, ὁ δὲ νότος λήγων· ὅθεν καὶ ἡ παροιμία  
 συμβουλεύει τὰ περὶ τοὺς πλοῦς. ὁ μὲν γὰρ εὐθὺς οἶον ἐπικείται τοῖς περὶ ἄρκτον  
 οἰκοῦσιν, ὁ δὲ μακρὰν ἀφέστηκε· χρονιωτέρα δ' ἢ τῶν ἄπωθεν ἀπορροὴ καὶ ὅταν 40  
 ἄθροισθῇ πλήθος. τοῖς γὰρ περὶ Αἴγυπτον καὶ τοὺς τόπους ἐκείνους ἀνάπαλιν,  
 ὁ νότος ἀρχόμενος μέγας, ὁ δὲ βορέας λήγων· ὅθεν καὶ τὴν παροιμίαν ἐναντίως  
 λέγουσιν. (6) ὡσαύτως δὲ καὶ τὸ πυκνὸν καὶ ἄκυμον καὶ συνεχές καὶ ὁμαλές  
 ἐκείνοις ὁ νότος ποιεῖ μᾶλλον· αἰ γὰρ τοῖς ἐγγὺς ἕκαστος τοιοῦτος· (εἰς) δὲ τὰ  
 πόρρω καὶ ἀνωμαλῆς καὶ διεσπασμένος μᾶλλον. 45

τούτων μὲν οὖν τὰς εἰρημένας αἰτίας ὑποληπτέον, αἵπερ ἐμφανεῖς καὶ κατ'  
 ἄλλους τόπους εἰσὶν ἐλάττους καὶ ἔλαττον ἀπέχοντας ἀλλήλων. τὰδε δ' οὐκ ἂν

25 ἀνειμένον Ald. : ἀνειμένου A 26 ἄλλεινου Furl. : ἀλλ' εἰ A 27 πᾶσιν D† 28 τὸ D : τῷ A 29  
 ἀνωμαλές D† || ὁμαλόν A : ὅμαλον Wim. || ἀρχομένου Turn. : ἐρχομένου A 30 ἀπόστασιν Furl. :  
 ἐπίστασιν A || ἀποδίδεται Schn.<sup>1</sup> : ἀποδύει A 31 ὅπου A : ὅποι Schn.<sup>1</sup> || ἐπωθεῖ scripsi : ἀπαθείς A  
 : ἀπωθεῖ Turn. || δ' A : secl. Furl. : om. Wim. 33 ὥστε ἀπλῶς εἰπεῖν Π (ante ὥστε lac., καὶ conl.  
 Haslam) : πῶς εἰπεῖν ἢ A : καὶ ἀπλῶς εἰπεῖν Schn.<sup>4</sup> 33–34 τόπου πνέοντες Π Μ : τόπου (lac. 5 litt.)  
 πνέοντες A 34 μικρὰ Π A : μικρὰν V 35 γὰρ om. B || προσκόψῃ Turn. : προ[κ]όψῃ Π : παρακόψῃ A  
 37 δ' αὐτῆς Π : αὐτῆς δ' A : δ' αὐτῆς δ' V 41 γὰρ A : δὲ Gigon 42 μέγας ὁ δὲ βορέας λήγων Haslam  
 : νότος ὁ δὲ βορέας αἱ[γ]ωγ Π : μέγας A 43 συνεχές A : ἀσυνεχές Π 44 ἕκαστος τοιοῦτος (lac. 3  
 litt.) δὲ τὰ A, add. εἰς Turn. : ...[στο[ι]c τ[ c. 10 ] τὰ Π : sine lac. r : add. τοῖς post τοιοῦτος Anon. :  
 om. τὰ Schn.<sup>1</sup> 45 post πόρρω add. προίων Gigon || μᾶλλον A : om. Ald. 47 τόπους Turn. : τρόπους  
 A 47–48 τὰδε δ' οὐκ ἂν δόξειεν ἀνάλογον scripsi : τὰδε [δ' οὖν/οὐκ(?) ἀ]ν δόξειεν ἀνά[α][λογον]  
 Π (cf. τοῦτο δ' οὐκ ἂν δόξειεν ἀνάλογον Schn.<sup>1</sup>) : τοῦτο δ' οὖν καὶ δόξει ἀνάλογον A (ἀν ἀλογον z) :  
 τοῦτο δ' ἂν καὶ δόξειεν ἀλογον Turn. : τοῦτο δ' οὖν [καὶ] δόξειεν ἂν ἀλογον Gigon

25–26 διὸ καὶ ὁ νότος ... μᾶλλον ἢ βορέας] Pr. 26.49.946a1–3 35–36 ὅπου γὰρ ... ὕδατος γένεσις]  
 Pr. 26.56.946b35 37–38 ἐκ τῆς δ' αὐτῆς αἰτίας ... νότος λήγων] Pr. 26.39.944b30–31, [Thphr.]  
 Sign. 29.203–204 46–49 τούτων μὲν ... ἔξω δ' αἶθριος] Pr. 26.20.942a34–37, Pr. 26.62.947b4–5



also (the) (wind traveling) into the distance is more heated up and relaxed. And this is why Notos is colder there than it is with us—and as some people say, even more so than Boreas. But the change also produces something with respect to perception, as the location is already warm. (4) And this is common so to speak to all (winds). But for each (wind), whether it is rainy or clear, and whether it is wave-like or waveless (i.e. gusty or steady), and dense (or not) and continuous (or not), and irregular or regular, and further, whether it is powerful when it begins or when it ceases, are better explained with a view to the distance of the locations. For from wherever each (wind) blows, at these (locations) it is clear; whereas wherever it pushes the air, at these (locations) however it is cloudy and rainy. Hence, Boreas, and even more the Etesians, are rainy for those dwelling to the south and the east; whereas Notos, and generally speaking those (winds) blowing from that location, (are rainy) for those (dwelling) to the north. (5) And here, that regions have elevation is not a small but a very great influence; for wherever the clouds strike against (something) and become stationary, there too is the generation of rain. And this is why, (even) among locations in close proximity, different winds are rainy in different (locations). But concerning rain, there has been discussion at length in other places. Now from the same cause as well Boreas is powerful as soon as it begins, whereas Notos is (powerful) when it ceases, for which reason indeed (comes) the proverb giving advice in matters concerning sailing. For the one (wind) straightaway as it were presses upon those dwelling in the north, whereas the other stands far off; but the flow from far away (locations) takes more time and (occurs) when a quantity has collected. For those (dwelling) in Egypt and such locations it is reverse: Notos is powerful when it begins, Boreas when it ceases; for which reason they in fact say the proverb in the opposite way. (6) And similarly too Notos in these (locations) produces more of what is dense and waveless (i.e. steady) and continuous and regular; for each (wind) is always such for those near (the place of origin); but (blowing) (into) far off (lands), it is more irregular and dispersed.

(The causes) of these (differentiae), therefore, one must suppose to be the causes that have been stated, the very ones that are obvious even in other locations smaller (in area) and less far away from each other. But

δόξειεν ἀνάλογον ἔχειν· ὁ μὲν γὰρ νότος ἀεὶ τοῖς ἐγγύς τόποις αἰθριος, ὁ δὲ βορέας  
 ὅταν ἦ κατὰ χειμῶνα μέγας ἐν μὲν τοῖς πλησίον ἐπινεφῆς ἔξω δ' αἰθριος. (7)  
 αἴτιον δ' ὅτι διὰ μὲν τὸ μέγεθος πολὺν ἀέρα κινεῖ, τοῦτον δὲ φθάνει πηγνὺς πρὶν  
 50 ἀπῶσαι. παγέντα δὲ μένει τὰ νέφη διὰ βάρους· εἰς δὲ τὰ ἔξω καὶ πορρωτέρω τὸ  
 μέγεθος μᾶλλον ἢ ἡ ψυχρότης διαδίδεται καὶ τοῦτο τὸ ἐργαζόμενον. ὁ δὲ νότος  
 ἦττον τε ἔχων ὕλην καὶ ταύτην οὐ πηγνὺς ἀλλ' ἀπωθῶν, αἰθριός ἀεὶ τοῖς πλησίον.  
 ὑετιώτερος δ' ἀεὶ τοῖς πόρρω, μέγας πνέων καὶ λήγων μᾶλλον ἢ ἀρχόμενος· ὅτι  
 55 ἀρχόμενος μὲν ὀλίγον ἀέρα ἀπωθεῖ, προϊὼν δὲ πλείω. καὶ οὗτος ἀθροίζόμενος  
 ἐκνεφούται τε καὶ πυκνωθεὶς ὑδάτινος γίνεται. τὸ δὲ καὶ τὸ ἀπ' ἐλάττονος ἢ  
 μείζονος ἀρχῆς ἄρχεσθαι διαφέρει. μικρὰς μὲν γὰρ οὔσης αἰθριος, μεγάλης δ'  
 ἐπινεφῆς καὶ ὑέτιος διὰ τὸ πλείω συνωθεῖν ἀέρα. (8) τὸ δὲ μὴ πνεῖν κατ' αὐτὴν  
 τὴν Αἴγυπτον εἰς θάλατταν τὸν νότον ὥς τινὲς φασὶ μὴδ' ὅσον ἡμέρας ἀπέχοντα[ι]  
 καὶ νυκτὸς δρόμον, ἀλλὰ τὰ ὑπὲρ Μεμφίδος λαμπρόν, ὁμοίως δὲ καὶ ἂν ἀπέχη  
 60 τοσοῦτον, οὐκ ἀληθὲς μὲν εἶναι φασὶν ἀλλὰ ψεῦδος· οὐ μὴν ἴσως γε, ἀλλ' ἔλαττον  
 πνεῖ. τὸ δ' αἴτιον ὅτι κοίλῃ τὰ κάτω ἢ Αἴγυπτος, ὥσθ' ὑπερπίπτειν αὐτῆς, τὰ  
 δ' ἄνω ὑψηλότερα. ἔπειτα τὸ γε σύνεγγυς ἀπαιτεῖ τὸ μέγεθος· τὰ γὰρ τοιαῦτα  
 μάλιστ' ἐκ τῶν τόπων ἀποδοτέον, ἅπερ καὶ φύσιν ἔχει[ν]. διαμένει δ' ἐπινεφῆ καὶ  
 αἰθρία τὰ πνεύματα ταῦθ' ὁμοίως ὥσπερ ἀρτίως ἐλέγχθη. (9) τὸ δὲ τὸν βορέαν  
 65 ἐπιπνεῖν τῷ νότῳ, τὸν δὲ νότον μὴ τῷ βορέᾳ, πρὸς ἐκείνην τὴν αἰτίαν ἀνακτέον  
 (τ)ὴν μερίζουσιν ἐκάτερα κατὰ τοὺς τόπους. παρ' ἡμῖν γὰρ τοῦτο συμβαίνει καὶ  
 ὅλως τοῖς ὑπὸ τὴν ἄρκτον οἰκοῦσιν· τοῖς δὲ [ἡρος] πρὸς μεσημβρίαν ἀνάπαλιν.  
 αἴτιον δ' ἀμφοῖν τὸ αὐτό· τοῖς μὲν γὰρ ὁ βορέας, τοῖς δ' ὁ νότος πλησίον, ὥστ' εὐθύς  
 70 ἀρχόμενοι ποιοῦσιν αἴσθησιν, εἰς δὲ τὰ πόρρω βραδέως διικνουῦνται. (10) πλείστων  
 δ' ὄντων ὥσπερ εἴρηται βορείων καὶ νοτίων, ἐκατέρων οἷον τάξις ἐν οἷς χρόνους

48 ἔχειν Π : εἶναι Α || ἐγγύς Π : ἑαυτοῦ Α 49 κατὰ [χειμῶν]α Π : χειμῶν D† || ἐπ[ινεφῆς] Π :  
 συννεφῆς Α : συννεφῆς Μ || αἰθριος Π D† 50 κινεῖ Π D† || φθάνει πηγνὺς Π : φθάνει καὶ πηγνὺς  
 Α : φθάνει ἐκπηγνὺς Wim. 51 δὲ τὰ Π<sup>pc</sup> : τὰ τὰ Π<sup>ac</sup> : τὰ Α 51–52 τὸ μέγεθος Π : τοῦ μεγέθους Α 52  
 ἢ ἡ Π : ἡ Α || secl. τοῦτο Gigon || τὸ ἐργαζόμενον Π : ἐργαζομένη Α : ἐργάζεται Wim. 53 αἰθριος ἀεὶ  
 Π : αἰθρίαν ἄγει Α 55 ἀπωθεῖ Π : ἀπωθεῖται Α || οὔτος Π D : οὕτως Α 56 τὸ δὲ καὶ τὸ Α : τ[ c. 10 ] Π  
 : ἔτι δὲ καὶ τὸ Schn.<sup>1</sup> 58 κατ' αὐτὴν Turn. : κατὰ ταύτην Α 59 εἰς Α : (τὴν) πρὸς Sch.<sup>4</sup> || ἀπέχοντα  
 Vasc. : ἀπέχονται Α 60 Μεμφίδος Ald. : μεμφίνος Α || ἂν Wim. : ἐὰν Α 61 οὐ D† 62 πνεῖ Α :  
 πνεῖν Ν 63 ἄνω ὑψηλότερα V<sup>a</sup> : ἄνωψηλότερα Α || obelis inclusi 64 ἔχει Turn. : ἔχειν Α 65 ταῦθ'  
 Ald. : τοῦθ' Α 67 τὴν Turn. : ἣν Α 68 τοῖς δὲ [ἡρος] Turn. : τοῦ δ' ἡρος Α 69 αἴτιον D† || ὁ νότος  
 D† 70 αἴσθησιν D† 71 ἐκατέρων Turn. : ἐκατέρως Α || τάξις Α : τάξεις R

50–52 αἴτιον δ' ... τὸ ἐργαζόμενον] *Pr.* 26.62.947b5–9 52–54 ὁ δὲ νότος ... ἢ ἀρχόμενος] *Pr.*  
 26.19.942a29–31, 26.39.944b30–31, [Thphr.] *Sign.* 35.254 56–58 τὸ δὲ καὶ ... συνωθεῖν ἀέρα] *Pr.*  
 26.20.942a34–37, 26.38 58–61 τὸ δὲ μὴ πνεῖν ... ἀλλὰ ψεῦδος] *Pr.* 26.44 65–70 τὸ δὲ τὸν βορέαν  
 ... βραδέως διικνουῦνται] *Pr.* 26.47

these might not seem to have a correspondence: for Notos is always clear in the nearby locations, whereas Boreas, when it is powerful during winter, is cloud-bearing in the neighboring (locations), yet clear beyond (them). (7) The explanation is that because of its power it moves a lot of air, but it first freezes this before it can thrust (the air) away. And the clouds, having frozen, remain because of the weight; and the power rather than the cold is transmitted to parts outside and farther away, and this is what is producing (the effect). Notos, however, having less matter and not freezing it but thrusting it away, is always clear in neighboring (locations). Yet it is always rainier in the far away (locations), blowing powerfully in fact when it is ceasing more than when it is beginning: because when it is beginning it thrusts away little air, though more as it advances. And this (air) being collected becomes a cloud, and condensed it becomes rainy. But moreover, the beginning being from a smaller or greater origin also makes a difference. For when (the origin) is small (the wind) is clear, but when great it is cloudy and rainy because it thrusts more air together. (8) Now, that Notos does not blow down Egypt itself to the sea, as some say, nor extending for the distance of a night and day run (inland), but in the regions beyond Memphis it is vigorous, and likewise too in those places which are removed to such a distance, they say this is not true but false. In fact, it does not blow as much (there), but less. And the explanation is that Egypt in its lower regions is hollow, so that (Notos) passes over it, but its upper regions are higher. †since indeed power requires proximity† For one must explain such (phenomena), which indeed have a nature, especially with reference to their locations. But these winds remain cloudy or clear in a way similar to what has just been stated. (9) That Boreas blows against Notos, whereas Notos does not (blow against) Boreas, one must refer to that explanation assigning particular (phenomena) to their locations. For this occurs among us and in general to those dwelling to the north; but for those dwelling toward the south it is reverse. But the cause is the same for both: for Boreas is by the northerners, whereas Notos is by the southerners, so that when they begin (to blow) they are felt immediately, but they make their way to the far away (locations) slowly. (10) Now, as Boreas and Notos are the most (frequent) winds, as has been said, there is a logical order as it were for each during which (times)

μάλιστα πνέουσι κατὰ λόγον ἐστί· τοῖς μὲν βορείοις χειμῶνός τε καὶ θέρους καὶ  
 μετοπώρου μέχρι τοῦ λήγειν, τοῖς δὲ νοτίοις κατὰ χειμῶνα τὸ καὶ (ἡρος) ἀρχομένου  
 καὶ μετοπώρου λήγοντος. οὔτε γὰρ αἶ τε τοῦ ἡλίου φοραὶ συνεργοῦσιν ἀμφοτέροις  
 καὶ ἡ ἀνταπόδοσις γίνεται καθάπερ παλιρροοῦντος τοῦ ἀέρος· ὃ γ' ἂν ἀπωσθῇ 75  
 κατὰ χειμῶνα—πλείους γὰρ ὥς ἐπίπαν βόρειοι πνέουσι—καὶ ἔτι πρότερον τοῦ  
 θέρους ὑπὸ τῶν ἐτησίων καὶ τῶν ἐπὶ τούτοις, ἀνταποδίδεται πάλιν τοῦ ἡρος εἰς  
 τοῦσδε τοὺς τόπους, καὶ λήγοντος μετοπώρου καὶ περὶ πλειάδος δύσιν ἀνάλογον.  
 (11) ὅθεν καὶ τὸ θαυμαζόμενον ὥς οὐκ ὄν, διὰ τί βορέαι μὲν ἐτησῖαι γίνονται νότοι  
 δ' οὐ γίνονται, φαίνεται πως συμβαίνειν. οἱ γὰρ ἡρινοὶ νότοι καθάπερ ἐτήσιοι τινές 80  
 εἰσιν οὓς καλοῦσι λευκονότους, αἰθριοὶ γὰρ καὶ ἀσυννεφεῖς ὥς ἐπίπαν. ἅμα δὲ καὶ  
 τὸ μακρὰν ἡμῶν ἀπηρτῆσθαι λανθάνουσιν, ὃ δὲ βορέας εὐθὺς ἐν ἡμῖν.  
 ἡ δὲ τῶν ἐτησίων φύσις, διὰ τί τε ταύτην τὴν ὥραν καὶ πῶς οὕτως πνέουσι,  
 καὶ διὰ τί λήγουσι τῆς ἡμέρας ληγούσης καὶ νύκτωρ οὐ πνέουσι, σχεδὸν ἐν ταύ-  
 ταις λέγεται ταῖς αἰτίαις· ὥς ἄρα ἡ μὲν πνοὴ γίνεται διὰ τὴν τῆς χιόνης τῆξιν 85  
 ὅταν μὲν οὖν ὁ ἥλιος ἄρξηται λύειν τὸν πάγον καὶ κρατεῖν, οἱ πρόδρομοι, μετὰ  
 δὲ ταῦτα οἱ ἐτησῖαι. (12) τοῦ δ' ἅμα τῇ καταφορᾷ τοῦ ἡλίου λήγειν καὶ νύκτωρ  
 μὴ πνεῖν αἴτιον τὸ τὴν χιόνα τηκομένην παύεσθαι δυομένου, καὶ νύκτωρ μὴ τήκε-  
 σθαι δεδυκότος. οὐ μὴν ἀλλ' ἐνίστε πνέουσιν ὅταν πλείων ἢ τῆξις γίνηται· καὶ  
 γὰρ τῆς ἀνωμαλίας αἴτιον τοῦ(το ὑπο)ληπτέον. (ὅτε) μὲν γὰρ μεγάλοι καὶ συν- 90  
 εχεῖς, ὅτε δ' ἐλάττους καὶ διαλείποντες πνέουσι, διὰ τὸ τὰς τήξεις ἀνωμαλεῖς  
 γίνεσθαι. κατὰ δὲ τὴν ὕλην ἢ φορὰ. ταύτην δὲ τὴν ἀνωμαλίαν ἐνδέχεται καὶ  
 τοῖς τόποις καὶ τῷ συνεγγυς ἢ πόρρω καὶ ἄλλαις τοιαύταις διαφοραῖς συμβαίνειν.  
 (13) εἰ δ' οὖν ἀληθὲς ὃ λέγουσιν ἄλλοι τε καὶ οἱ περὶ Κρήτην, ὥς ἄρα νῦν μείζο-  
 νες οἱ χειμῶνες καὶ χιῶν πλείων πίπτει, τεκμήρια φέροντες ὥς τότε μὲν ὥκητο 95

72 πνέουσι B<sup>pc</sup> : πλέουσι A 72–73 ἐστί τοῖς μὲν βορείοις χειμῶνός τε καὶ θέρους καὶ μετοπώρου A  
 : om. Ald., et lac. indic. Wim. 73 (ἡρος) scripsi (iam (ἔαρος) Turn.) 74 οὔτε γὰρ αἶ τε A : καὶ  
 pro οὔτε Furl. : secl. αἶ τε Gigon 75 γ' ἂν Sider : γὰρ A : γὰρ (ἂν) Schn.<sup>1</sup> 76 βόρειοι Schn.<sup>2</sup> :  
 βόρειοις A || πνέουσι Turn. : πλέουσι A 77 ἀνταποδίδεται Schn.<sup>1</sup> : ἀνταποδιδόασιν A 78 ἀνάλογον  
 A : ἀνὰ λόγον Wim. 79 ὥς οὐκ ὄν A : post ὥς οὐκ ὄν lac. indic. V N (οὐ πλει N<sup>mss</sup>) || διὰ τί V : διατί  
 A || ἐτησῖαι D† 80 ἐτήσιοι B<sup>pc</sup> : κιτήσιοι A : ἐτησῖαι Schn.<sup>1</sup> 81 λευκονότους A : λευκονότοι B<sup>mss</sup> ||  
 αἰθριοὶ D† || γὰρ A : om. S || ἀσυννεφεῖς B<sup>pc</sup> : ἀσυννεφεῖς A 82 τὸ A : τῷ Turn. || λανθάνουσιν Turn. :  
 λαμβάνουσιν A || βορέας D† 83 ἡ δὲ A : ἡδε Furl. || τε scripsi : δὲ A || πῶς οὕτως A : τοσοῦτοι Schn.<sup>1</sup>  
 84 διὰ τί Ald. : διατί A 85 τῆξιν B<sup>pc</sup> : πῆξιν A 87 δὲ A : δὴ S<sup>ac</sup> 88 μὴ πνεῖν D† || χιόνα D : χιόναν  
 A || δυομένου D† 89 δεδυκότος S : δεδοικότος A || μὴν ἀλλ' ἐνίστε D : μ<sup>\*y</sup>\*\*\*\*\*τι A || τῆξις B<sup>pc</sup>  
 : πῆξις A || γίνηται A : γένηται z 89–90 καὶ γὰρ τῆς D† 90 τοῦ(το ὑπο)ληπτέον Turn. : του (lac.  
 7 litt.) ληπτέον A || (ὅτε) μὲν γὰρ Turn. : μὲν γὰρ D† : μὲν γὰρ ὅτε μὲν V<sup>a</sup> 91 διαλείποντες D† 92  
 γίνεσθαι D† 93 καὶ τῷ A : καὶ τὸ r 94 κρήτην D : κρήτην A 95 ὥκητο A : ὥκειτο V<sup>a</sup> : ὥκειτο Turn.

73–74 τοῖς δὲ νοτίοις ... μετοπώρου λήγοντος] Pr. 26.16.942a5–6 79–80 ὅθεν καὶ ... πως συμβαί-  
 νει] Arist. Mete. 2.5.362a11–13, Pr. 26.2.940a35 83–87 ἡ δὲ τῶν ἐτησίων ... οἱ ἐτησῖαι] Pr. 26.51

they blow most frequently: in the case of Boreas winds, (they blow) in winter and summer and until the end of autumn, whereas in the case of Notos winds (they blow) throughout winter and at the beginning (of spring) and the end of autumn. For the motions of the sun in fact do not cooperate with both (winds), and the 'repayment' occurs as a flowing back of air: whatever may have been thrust out in winter—on the whole more Boreas winds blow (in winter)—and again before summer by the Etesians and the (winds) following them, is 'paid back' again in proportion into these locations in spring, and when autumn comes to an end, and around the setting of the Pleiades. (11) For this reason too what is wondered about as not being (the case)—why Boreas winds are Etesians whereas Notos winds are not—in some sense *does* appear to happen. For some springtime Notos winds—which are called White Notos, since on the whole they are clear and cloudless—are as it were 'etesian' (i.e. annual). And at the same time too, being far removed from us they go unnoticed, while Boreas is straightaway (present) among us.

Now the nature of the Etesians—why they blow in this season, how (they do) in this way, and why they come to an end when the day comes to an end and do not blow at night—is explained by and large in terms of these causes: The blowing occurs because of the melting of the snow; so, when the sun begins to dissolve the frost and achieve mastery, the Forerunners (appear), and after these the Etesians. (12) And a cause of the ceasing (of these winds) at the same time as the sun going down and at night not blowing, is that the snow stops melting when (the sun) is setting, and at night it does not melt once (the sun) has set. Yet in fact sometimes (these winds) do blow (at night), when the melting is greater (than usual); and indeed, one must suppose the following to be a cause of the irregularity. For (sometimes) they blow powerful and continuous, sometimes weaker and intermittent, because of the irregularity of the melting. The motion is in accordance with the matter. And this irregularity might also occur owing to the locations and to the proximity or distance and to other such variations. (13) But if, then, it is true what others, especially those (living) in Crete, say, that now the winters are longer and more snow falls, presenting as proof

τὰ ὄρη καὶ ἔφερε καρπὸν καὶ τὸν σιτηρὸν καὶ τὸν δενδρίτην, πεφυτευμένης καὶ  
 διειργασμένης τῆς χώρας. ἔστι γὰρ πεδία ἐν τοῖς Ἰδαίοις ὄρεσιν εὐμεγέθη καὶ ἐν  
 τοῖς ἄλλοις, ὧν νῦν οὐδ' ὅτιοι γεωργοῦσι διὰ τὸ μὴ φέρειν. τότε δ' ὥσπερ εἴρηται  
 καὶ ἐπώκουν, ὅθεν καὶ ἡ νῆσος πλήρης ἦν ἀνθρώπων, ὄμβρων μὲν γενομένων κατ'  
 ἐκείνον τὸν χρόνον, πολλῶν χιόνων δὲ καὶ χειμῶνων μὴ γενομένων. εἰ δ' ἔστιν ἀληθὴ 100  
 ταῦτα καθάπερ λέγομεν, ἀναγκαῖον καὶ τοὺς ἐτησίας εἶναι πλείους. (14) εἰ δέ  
 ποτ' ἐξέλιπον καὶ Ἀρισταῖος αὐτοὺς ἀνεκαλέσατο, θύσας τὰς ἐν Κέῳ θυσίας τῷ  
 Διῖ, καθάπερ μυθολογοῦσι, κάτομβρα μὲν ἂν εἴη τὰ ἐπιχειμέρια οὐχ' ὁμοίως οὐδὲ  
 χιονώδη. ταῦτα δ' εἴ τινα ἔχει[ν] διαλλαγὴν εἴτε τεταγμένην εἴτ' ἄτακτον, εἴη ἂν 105  
 καὶ τῶν πνευμάτων παῦλα καὶ μεταλλαγὴ κατὰ τοὺς αὐτοὺς χρόνους. ἄτοπον δ' ἂν  
 δόξειεν εἰ μὴ καὶ τοῖς πρὸς μεσημβρίαν ἐστὶ τοιαύτη τις ἐπικουρία κατὰ τὸ ἦθος·  
 πολλῶ γὰρ ἐκπυρώτερος ὁ τόπος ἐκεῖνος. δῆλον οὖν τοῦτο, πλὴν εἰς (*lac. 5 litt.*)  
 [μῖση] τὸν καρπὸν, οἱ δὲ προτεροῦσιν, οἱ δ' ἀπαθείς εἰσί. περὶ μὲν τούτων σκεπτέον.  
 (15) εἰ δὲ πάντων τῶν πνευμάτων ἡ αὐτὴ καὶ ὑπὸ τῶν αὐτῶν γένεσις, τῷ τι 110  
 παραλαβεῖν, ὁ ἥλιος ἂν ὁ ποιῶν εἴη. τάχα δ' οὐκ ἀληθὲς καθόλου εἰπεῖν, ἀλλ' ὥς  
 ἡ ἀναθυμίασις, οὗτος δ' ὥς συνεργῶν. ἄλλ' ὁ ἥλιος δοκεῖ καὶ κινεῖν ἀνατέλλων καὶ  
 καταπαύειν τὰ πνεύματα· διὸ καὶ ἐπαυξάνεται καὶ πίπτει πολλάκις. οὐ καθόλου  
 δὲ τοῦτ' ἀληθές, ἀλλ' ἐφ' ὧν γε συμβαίνει ταύτην ὑποληπτέον τὴν αἰτίαν. ὅταν μὲν  
 γὰρ ἔλαττον ἦ τὸ ἀνηγμένον ὑγρόν, τούτου κατακρατῶν ἐξανήλωσε καὶ κατέπαυ- 115  
 σεν ὁ ἥλιος· ὅταν δὲ πλέον συμπαρῶρμησε καὶ σφοδροτέραν ἐποίησε τὴν κίνησιν.  
 (16) ἐνίστε δὲ καὶ ἅμα τῇ δύσει κατέπαυσεν, ὥσπερ ἀφελόμενος τὴν ἀπ' αὐτοῦ  
 κίνησιν ἣν ἔδωκεν. ταύτην δὲ δῆλον ὡς ἔχειν τινα δεῖ συμμετρίαν, ὥστε μήτ' ἐξα-  
 ναλίσκεσθαι μήτ' ἐξ αὐτῆς δύνασθαι κινεῖσθαι πλείω χρόνον. ἔνια δὲ καὶ δύνοντος  
 τοῦ ἡλίου [ὑ]πνεῖν οὐδὲν κωλύει μᾶλλον, οἷον ὅσα κατέχεται τῇ θερμότητι καὶ 120  
 ὥσπερ ἀναξηραίνεται καὶ ἐγκαίεται. διὰ τοῦτο γὰρ καὶ ἐν μεσημβρίᾳ μάλιστα

96 σιτηρὸν Turn. : σιδηρὸν A 97 Ἰδαίοις Schn.<sup>5</sup> : ἰδαίοις A : Ἰδης B<sup>ms</sup> 100 χιόνων δὲ Turn. : χρόνων  
 δὲ A : δὲ χρόνων δὲ V<sup>a</sup> (alt. δὲ supra l.) : χρόνων μὲν δὲ V (δὲ supra l.) : δὲ χρόνων δὲ z || χειμῶνων D  
 : χειμόνων A || γενομένων z : γινομένων A 101 καθάπερ λέγομεν A : ὅπερ λέγομεν z : ὅπερ λέγουσιν  
 Wim. || εἶναι D† : εἶναι (νῦν) Gigon 102 ἐξέλιπον Turn. : ἐξέλειπον A 103 μὲν ἂν A : μὲν, ἂν<sup>sl</sup> B :  
 ἂν S 104 δ' εἴ Turn. : δεῖ A : δὴ V || ἔχει Turn. : ἔχειν A || τεταγμένην V<sup>a</sup> : τεταγμένη A 106 ἐστὶ A  
 : εἴη Wim. || ἦθος A : ἔτος vel θέρος Turn. 107–108 εἰς (*lac. 5 litt.*) μῖση τὸν καρπὸν A (μῖση pro  
 μιση S), μιση seclusi : εἰς μιση τὸν καρπὸν (*lac. 12 litt.*) z (εἴη pro εἰς z<sup>ms</sup> sec. manus) 108 οἱ δὲ  
 προτεροῦσιν A : om. z 109 εἰ Ald. : καὶ A : αἱ D || τι A : om. *lac. indic.* M 110 ὁ ἥλιος M : ἥλιος  
 A : ἥλεος B || ἂν ὁ ποιῶν Turn. : ἂν ποιῶν D† 110–111 ἀλλ' ὡς ἡ D† 111 οὗτος Turn. : οὕτως A :  
 οὕτω V<sup>a</sup> || δ' ὡς A : δὲ ὅς z || ἄλλ' ὁ B<sup>pc</sup> : ἄλλο A || ἥλιος D† 112 τὰ D† || πίπτει A : ἐμπίπτει B 113  
 γε Turn. : τε A 114 ἐξανήλωσε Schn.<sup>1</sup> : ἐξανήλωκε A 115 ὁ A : ὁ V<sup>a</sup> || ἐποίησε D : ἐποίη A 116  
 κατέπαυσεν B<sup>pc</sup> : κατέκαυσεν A || om. ὥσπερ Ald. || ἀπ' αὐτοῦ A : ἀφ' αὐτοῦ Gigon 117–118 post  
 ἐξαναλίσκεσθαι add. (πρότερον) Gigon 118 αὐτῆς A : αὐτῆς Gigon 119 πνεῖν Turn. : ὑπνεῖν A 120  
 ἐγκαίεται A : ἐκκαίεται Schn.<sup>2</sup>

113–115 ὅταν μὲν γὰρ ... τὴν κίνησιν] *Pr.* 26.34

the fact that the mountains once had been inhabited and bore crops, both grain and fruit-tree, the land having been planted and cultivated. For there are vast plains among the Idaean mountains and among others, none of which are farmed now because they do not bear (crops). But once, as was said, they were in fact settled, for which reason indeed the island was full of people, as heavy rains occurred at that time, whereas much snow and wintery weather did not occur. If these things are true just as we say, the Etesians too must be more numerous. (14) But if ever (the Etesians) ceased and (then) Aristaeus called them back—making the sacrifices in Ceos to Zeus, just as they say in myths—the (areas) exposed to storms would not be as rainy nor as snowy. And if these involve any variation, either ordered or disorderly, there would be at the same times cessation and change of the winds. And it would seem strange if there is not also among those in the south some such customary request for aid; for that location is much hotter. This is clear, then, except to ... the crops, but some are early, and some are unaffected. These matters must be investigated.

(15) Now if the generation of all winds is the same and for the same reasons, through receiving something, the sun would be the producer. Yet perhaps this is not true speaking universally, but rather that exhalation (is the producer), and this (i.e. the sun) is as it were a co-worker. But the sun when it rises seems both to set in motion and bring to a halt the winds; and this is why they often increase and fall (at that time). Now this is not universally true, but at least in the cases in which it happens one must suppose this to be the cause. For whenever the raised-up moisture is less, the sun overpowers and exhausts it and so brings (the wind) to a halt; whereas whenever (the raised-up moisture) is greater, (the sun) adds an impetus and produces a more violent motion. (16) And sometimes, at the time of its setting, (the sun) halts (the wind), as it were removing the motion from it which (earlier) it had provided. And it is clear that this (motion) must have a certain (sc. balanced) proportion, so that (the wind) neither is exhausted nor is able to be kept in motion out of it (i.e. the exhalation) for too long a time. But nothing prevents some (winds) from blowing more even when the sun is setting, for instance those held back by the heat and as it were dried up and scorched. And indeed, for this reason at noon (these winds)

ἀπνεύματοι, παρεγκλίναντος δὲ τοῦ ἡλίου πνευματωδέστεραι. (17) ποιεῖ δὲ καὶ ἡ σελήνη ταῦτα πλὴν οὐχ' ὁμοίως, οἷον γὰρ ἀσθενὴς ἡλιός ἐστιν. διὸ καὶ νύκτωρ δεινότεραι (*lac. 12 litt.*) καὶ αἱ σύνοδοι τῶν μηνῶν χειμερινώτεραι. συμβαίνει δ' οὖν ὅτε μὲν ἀνατέλλοντος τοῦ ἡλίου τὰ πνεύματα ἐπαίρεσθαι, ὅτε δὲ λήγειν. καὶ ἐπὶ τῆς δύσεως ὁμοίως· ὅτε μὲν γὰρ κατέπαυσεν, ὅτε δ' ὥσπερ ἀφήκεν. εἰ δέ ποτε καὶ κατὰ σύμπτωμα γίνοιτο ταῦτα, καθάπερ καὶ τὰ ἐπὶ τῶν ἄστρων ἀνατολαῖς καὶ δύσεσιν, ἐπισκεπτέον. (18) ταῦτό δὲ καὶ ἀπὸ τῆς αὐτῆς πως αἰτίας· καὶ διὰ μέσων νυκτῶν καὶ μεσημβρίας ἄπνοιαί γίνονται καὶ μάλιστα. συμβαίνει γὰρ ποτὲ μὲν κρατεῖν ποτὲ δὲ κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον ὑπὸ τῶν (*lac. 9 litt.*) μέσων μὲν νυκτῶν κρατεῖν, πορρωτάτω γὰρ ὁ ἡλιός τότε, μεσημβρίας δὲ [κρατεῖν ποτὲ δὲ] κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον. κρατῶν δὲ καὶ κρατούμενος ἔστηκεν, ἡ δὲ στάσις νηνεμία. συμβαίνει δὲ καὶ τὰς καταπαύσεις γίνεσθαι τῶν πνευμάτων κατὰ λόγον. ἄρχεται μὲν γὰρ ἡ περὶ ἕω ἡ περὶ δυσμᾶς· λήγει δὲ τὰ μὲν ἕωθεν ὅταν κρατηθῇ, κρατεῖται δὲ κατὰ μεσημβρίαν· τὰ δ' ἀπὸ δυσμῶν ὅταν παύσῃται κρατῶν, τοῦτο δὲ γίνεται μέσων νυκτῶν.

(19) εἰ δὲ τινες θαυμάζουσιν ὡς ἄλογον ὅτι τὰ πνεύματα ψυχρά ἐστιν ἀπὸ τῆς τοῦ ἡλίου κινήσεως καὶ ἀπλῶς τοῦ θερμοῦ γινόμενα, ψεῦδος τὸ φαινόμενον αὐτοῖς ἄλογον. οὕτε γὰρ ἀπλῶς ἀλλ' ὡς συναιτίῳ προσαπτέον, οὕτε πάντως ἡ ὑπὸ τοῦ θερμοῦ κίνησις θερμῇ καὶ πυρώδης, ἀλλ' ἐὰν τρόπον τινὰ γίνηται. ἀθρόως μὲν γὰρ ἐκπίπτουσα καὶ [ἡ] συνεχῆς αὐτῷ τῷ ἀφιέντι θερμῇ· κατὰ μικρὸν δὲ καὶ διὰ στενοῦ τινός, αὐτὴ μὲν θερμῇ, ὁ δ' ὑπὸ ταύτης κινούμενος ἀήρ, ὁποῖος ἂν ποτε τυγχάνῃ προυπάρχων, τοιαύτην δὲ τὴν κίνησιν ἀποδίδωσι. (20) παράδειγμα δ' ἱκανὸν τὸ ἐκ τῶν στομάτων ἀφιέμενον, ὃ φασιν εἶναι θερμὸν καὶ ψυχρόν, οὐκ ἀληθὴ λέγοντες. ἀλλ' αἰεὶ μὲν θερμὸν ἐστὶ, διαφέρει δὲ τῇ προέσει καὶ ἐκπτώσει. χαίνοντων μὲν γὰρ

121 post πνευματωδέστεραι *lac. indic. et conl.* (αἱ ἡμέραι) *Gigon* 122 ταῦτα *D†* : ταὐτὰ *Schn.*<sup>1</sup> || ἐστιν *D†* 123 δεινότεραι (*lac. 12 litt.*) *A* : sine *lac. r* 126 post ἐπὶ *add.* (ταῖς) *Gigon* 127 post ἐπισκεπτέον *add.* τοῦτο δὲ *Schn.*<sup>4</sup> (*ex incip. cap. 18* ταὐτό δὲ), *add.* τοῦτ' ἂν εἴη *Wim.* || ἀπὸ *Schn.*<sup>1</sup> : ἐπὶ *A* || *om.* πως *Wim.* 128 *secl.* καὶ *Schn.*<sup>1</sup> 129 τῶν (*lac. 9 litt.*) *A* : sine *lac. r* : τοῦ (ἡλίου· καὶ) *Wim.* 130 κρατεῖν *A* : κρατεῖ *Wim.* 130–131 δὲ κρατεῖν ποτὲ δὲ κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον *D*, *secl.* δὲ κρατεῖν ποτὲ *Cout.* : δὲ κρατεῖν ποτὲ δ\*\*\*\*\*τεῖν κρατεῖσθαι τὸν ἀέρα \*\*\*\*\* *A* : κρατεῖται *pro* κρατεῖν, *om.* ποτὲ δὲ—τοιοῦτον *Wim.* 131 στάσις *D†* 132 post καὶ *fort.* *add.* τὰς ἀρχαί καὶ *Gigon* || γίνεσθαι *Furl.* p. 85 : γενέσθαι *D†* 133 *om.* μὲν *B* || ἡ περὶ ἕω ἡ *Turn.* : ἡ θερμῇ *D* (ἡ *legi non potest A*) 134 τὰ δὲ *Turn.* : καὶ *A* 138 ἀλλ' ὡς *B<sup>pe?</sup>* = ἀλλ' ὡς : ἀλλως *A* 139 γίνηται *A* : γίνεται *H* 140 ἡ *A* (*om.* *Furl.*, *secl.* *Cout.*) 141 ἀήρ *Heins.* : αὐτὸ *A* 142 προυπάρχων *Turn.* : πρόσω ὑπάρχων *A* 144 post ἐστὶ *fort.* *ex Pr.* 26.48 *add.* σημείον δὲ τὸ ἐγγὺς προσαγαγόντι (τὴν χεῖρα) τοιοῦτον φαίνεσθαι *Gigon* || χαίνοντων *A* : χαλόντων *Schn.*<sup>1</sup>

121–122 ποιεῖ δὲ καὶ ... ἡλιός ἐστιν] [*Thphr.*] *Sign.* 5.33–34 127–135 ταὐτό δὲ καὶ ... μέσων νυκτῶν] *Pr.* 25.4 136–138 εἰ δὲ τινες ... αὐτοῖς ἄλογον] *Pr.* 26.48.945b8–10 142–151 παράδειγμα δ' ἱκανὸν ... τοιοῦτος ὁ ἀήρ] *Pr.* 26.48, 34.7



are for the most part still, but (they) have a greater flow of air when the sun inclines. (17) And the moon produces these (results) as well, except not with the same force, for it is as it were a weak sun. And this is why at night ... are more terrible and the conjunctions of the months (i.e. the new moons) are stormier. So, it happens that sometimes when the sun is rising the winds are stirred up, and sometimes they abate. And similarly in the case of the setting (of the sun): for sometimes it halts them, and sometimes it, as it were, releases them. But whether these things also ever happen according to coincidence, just as in the case of the rising and the setting of the stars, must be investigated. (18) And the same thing is also (true) in some sense from the same cause (in the case of calm weather): they (sc. winds) become still during both midnight and midday, in fact especially so. For it happens that at the one time such air achieves mastery, whereas at the other time it is mastered by the ... It achieves mastery at midnight, for the sun at that time is farthest away, whereas such air is mastered at midday. But mastering or being mastered, (the air) comes to a standstill, and that state is calm. And it also happens that the stoppages of the winds occur logically. For they begin around dawn or around dusk; but those from dawn abate when they are mastered, and they are mastered by midday; and those from dusk (abate) when (the sun) stops mastering (them), and this occurs at midnight.

(19) If some people wonder how irrational it is that the winds are cold coming from the motion and basically from the heat of the sun, what appears irrational to them is deceptive. For (the wind being cold) ought not to be attributed (to the sun) alone, but (to the sun) as a joint-cause, nor is the motion (caused) by the heat (of the sun) hot and fiery in every case, but (only) if it comes to be in a certain way. For coming out all at once and continuous with the very thing discharging it, it is hot; however, (coming out) little by little and through something narrow, although it is itself hot, the air set in motion by it renders such a motion whatever sort (of temperature that air) happened to be beforehand. (20) A sufficient example is what is released out of our mouths, which they say is hot and cold, not speaking truthfully. Rather it is always hot, but it differs in the (manner of) emission

καὶ ἀθρόον ἀφιέντων θερμόν, ἐὰν δὲ διὰ στενοῦ σφοδρότερον φερόμενον ὠθῇ τὸν 145  
 πλησίον ἀέρα κάκεινος τὸν ἐχόμενον ψυχρὸν ὄντα, καὶ ἡ πνοὴ καὶ ἡ κίνησις γίνεται  
 ψυχρά. τὸ αὐτὸ δὲ καὶ ἐπὶ τῶν πνευμάτων συμβαίνει· διὰ στενοῦ γὰρ οὐσης τῆς  
 πρώτης κινήσεως, αὐτὸ μὲν τὸ πρῶτον οὐ ψυχρόν· τὸ δ' ὑπὸ τούτου κινούμενον ὡς  
 ἂν ἔχον τυγχάνῃ πρὸς θερμότητα καὶ ψυχρότητα. ψυχροῦ μὲν γὰρ ὄντος, ψυχρόν· 150  
 θερμοῦ δὲ θερμόν. καὶ διὰ τούτου θέρους μὲν θερμά, χειμῶνος δὲ ψυχρά πνεύματα.  
 καθ' ἑκατέραν γὰρ τὴν ὥραν τοιοῦτος ὁ ἀήρ. (21) φανερόν δ' ὅπου διὰ τὴν (*lac.*  
*8 litt.*) ἐκπεπρωμένον οἶον τετύχηκεν. ἐὰν γὰρ ὅπου (*lac. 6 litt.*) πνεῦμα καὶ ὁ  
 τόπος (*lac. 8 litt.*) θερμόν εἴτε ψυχρόν ὅμως (*lac. 7 litt.*) διάφορα τοῦ ἀέρος [ἡ πο] 155  
 (*lac. 8 litt.*) ἂν ᾗ τοιοῦτος φαίνεται. καὶ ἐν αὐτοῖς μὲν τοῖς τόποις (καὶ ἦττον) τοῖς  
 συνεχέσιν ἔμπυρος ἡ πνοὴ γίνεται· πορρωτέρω δὲ προϊοῦσιν οὐχ ὁμοίως. ἐνίοτε  
 δὲ καὶ τὸ ἄλλοθεν ἐπιόν, ἐὰν ἐξ ἐμπύρων ᾗ τόπων καὶ ἐχόντων ἀέρα παχὺν καὶ  
 διακεκαυμένον, καὶ ὑπερβάλλον φαίνεται τῇ θερμότητι. διὸ καὶ οἱ ὁδοιπόροι μὲν καὶ  
 θερισταὶ πολλάκις ἀποθνήσκουσιν ὑπὸ τῶν τοιούτων πνευμάτων, ἐν τοῖς πεδίοις  
 καὶ ἐν τοῖς πνιγεροῖς τόποις, τὸ μὲν αὐτοῦ συνεργαζομένου τοῦ συνυπάρχοντος 160  
 ἀέρος, τὸ δὲ τοῦ διαφόρου διὰ τὴν πνοὴν καὶ τὴν πρόσπτωσιν. (22) ὅτι δ' ὑπ' αὐτοῦ  
 μόνος κινούμενος ὁ ἀήρ ὁ ὑπὸ τοῦ θερμοῦ κρατούμενος ταύτην φέρεται τὴν φορὰν  
 κάκειθεν δῆλον· εἰ μὲν γὰρ διὰ τὸ ψυχρὸς φύσει καὶ ἀτμιδῶδης κάτω ἂν ἐφέρετο,  
 εἰθ' ὑπὸ τοῦ θερμοῦ ἄνω. τοῦ γὰρ πυρὸς κατὰ φύσιν αὕτη ἡ φορὰ. νῦν δ' ὥσπερ ἐξ  
 ἀμφοῖν μικτή, διὰ τὸ μὴδ' ἕτερον κρατεῖν. (23) τούτῳ μὲν οὖν καθόλου τῷ κοινῷ,  
 ὅτι ὁποῖος ἂν ὁ ἀήρ ᾗ ἀναθυμίασις καθ' ἑκάστους ᾗ τόπους, οὕτως ἔξει καὶ τὰ 165  
 πνεύματα τῇ ψυχρότητι, καὶ τὰδε συμμαρτυρεῖ· ὅσα γὰρ ἀπὸ ποταμῶν ἢ λιμνῶν  
 πάντα ψυχρά διὰ τὴν ὑγρότητα τοῦ ἀέρος. ἀποψύχεται μὲν γὰρ ἀπολείποντος τοῦ  
 ἡλίου, καὶ ἅμα παχύτερος ὁ ἀτμός, καὶ ἔτι δ' εἰ σύνεγγυς, ὥσθ' ὅταν προσπίπτῃ,

145 post θερμόν fort. ex *Pr.* 26.48 add. διὰ τὸ αὐτοῦ αἰσθάνεσθαι Gigon || ὠθῇ Ald. : ὠθεῖ A 146  
 ψυχρὸν ὄντα Bon. : ψυχρῶν ὄντων A 150 ψυχρά D† || ante πνεύματα add. τὰ Bon. 151 ὁ ἀήρ D†  
 151–152 (*lac. 8 litt.*) A 152 ἐκπεπρωμένον D† || πνεῦμα D† 152–153 ὁ πόθος (*lac. 8 litt.*) A, τόπος  
 pro πόθος Bon. 153 ὅμως D† 153–154 ἡ πο (*lac. 8 litt.*) A, om. ἡ πο D (*ἡ πο seclusi*) : sine  
*lac.* Ald. : ὁποῖος pro ἡ πο Schn.<sup>5</sup> 154 τοιοῦτος A : τοιοῦτο Gigon || (καὶ ἦττον) scripsi : *lac. 9 litt.*  
 A : (καὶ) Turn. 157 διακεκαυμένον Schn.<sup>5</sup> : διακέμενον A || καὶ A : secl. Heins., om. Schn.<sup>1</sup> || secl.  
 μὲν Schn.<sup>1</sup> 159 πνιγεροῖς A : πνιγηροῖς Turn. || τὸ Bon. : τὰ A || συνυπάρχοντος A : ἐνυπάρχοντος  
 Gigon 160 τὸ A : τὰ Turn. || post πρόσπτωσιν *lac. indic.* Schn.<sup>1</sup> || ὅτι Turn. : ὅπου A || ante ὑπ'  
 αὐτοῦ add. οὐτ' αὐτὸς Furl. p. 86 : ὑφ' αὐτοῦ pro ὑπ' αὐτοῦ Gigon 161 ὁ A : οὐθ' Furl. 162 post  
 γὰρ add. ὑφ' αὐτοῦ Turn. || ψυχρὸς A : ψυχρὸς (εἶναι) Turn. || ἀτμιδῶδης D† || ἂν ἐφέρετο Turn. :  
 ἀνεφέρετο A 163 εἰθ' SP<sup>c</sup> : εἰτ' A : εἴτα H : εἰ δ' Turn. || τοῦ Turn. : τὸ D† || πυρὸς Turn. : πῦρ ὡς  
 A 164 τούτῳ Schn.<sup>1</sup> : τούτο D : τούτ\* A || μὲν D† || τῷ κοινῷ Schn.<sup>1</sup> : τὸ κοινὸν A 165 ἡ D† : ἡ (ἡ)  
 Schn.<sup>1</sup> 166 post λιμνῶν add. ἔωθεν πνεῖ Gigon 167 ἀποψύχεται S : ἀποψύχεται A || om. μὲν Wim.  
 168 post ἔτι add. μᾶλλον Schn.<sup>5</sup> || δ' εἰ Bon. : δ' ἡ A || προσπίπτῃ A : προσπίπτει V : συμπίπτει SP<sup>c</sup> :  
 συμπίπτει S<sup>ac</sup>

160–164 ὅτι δ' ... ἕτερον κρατεῖν] *Pr.* 25.14

and escape. For when yawning and so releasing (the air) in a mass it is hot, whereas if, traveling through a narrow (passage) more violently, it pushes the neighboring air and that (air pushes) the following, which is cold, then both the breath and the motion become cold. And the same thing too happens in the case of the winds: for when the first movement is through a narrow (passage, the wind) itself at first is not cold; but what is set in motion by this is whatever it would happen to be with respect to heat and cold. For when (the air set in motion) is cold, (it remains) cold; and when it is hot, hot. And because of this winds are hot in summer, but cold in winter. For the air is such according to each season. (21) Now it is obvious wherever owing to the ... as it were happens to have been burned up. For if where ... wind and the location ... hot or cold nevertheless ... difference of the air ... it appears may be such. And in the locations themselves, (and less) in those nearby, the blowing becomes fiery-hot; but advancing further it is not the same way. But sometimes, too, when it comes from elsewhere, if it comes from fiery-hot locations that also have air thick and full of fire, (the wind) in fact appears to be excessive in its heat. And this is why travelers and reapers often die because of such winds, in the fields and in stifling locations—in part the pre-existing air itself collaborating, in part the different (air collaborating) through its blowing and its impact. (22) That the air mastered by heat and set in motion by it alone moves in this motion is clear from the following as well: for if (the air were moved) on account of what is cold by nature and vaporous, it would travel downwards, and if (it were moved) by heat (it would travel) upwards. For that is the natural motion of fire. But as it is, the motion is mixed from both because one cannot master the other. (23) So, to this universally general (principle)—that such as the air or exhalation is in each location, so too will the winds be with respect to cold—the following (facts) too bear witness: all those (winds) from rivers or lakes are cold because of the moistness of the air. For it is cooled as the sun leaves off, and at the same time the vapor is thicker, and even more so if it is

συμβαίνει καθάπερ (ὕγ)ρανσίν τινα γίνεσθαι τοῖς σώμασι. (24) καὶ διὰ τοῦτο  
πολλάκις ἔγχοιλοι καὶ εὐσκεπεῖς τινὲς ὄντες τόποι τῶν ἔξω πνευμάτων ὑπὸ τῶν 170  
ἐγχωρίων εἰσὶ ψυχροί· τὸ γὰρ ἀναχθὲν ὑπὸ τοῦ ἡλίου μένειν οὔτε πεφυκὸς οὔτε  
δυνάμενον φέρεται καὶ ποιεῖ πνοήν, ὅθ' αἶτε ἀπὸ τῶν ποταμῶν καὶ λιμνῶν αὖραι καὶ  
ὅλως αἱ ἀπόγειαι πνέουσιν ἔωθεν, ἀπὸ ψυχομένης τῆς ἀτμίδος διὰ τὴν ἀπόλειψιν  
τοῦ θερμοῦ. τὴν γὰρ αὖραν ταύτην αὐτὴν γίνεσθαι κατὰ λόγον ἐστὶ διὰ τε τὰλλα 175  
καὶ διὰ τὴν εὐδίαν. καὶ ὅταν ψεκάδια καὶ ὑετοὶ μέτριοι γίνωνται μᾶλλον πνέουσι·  
προσγίνεται γὰρ ἡ ὕλη τότε πανταχοῦ καὶ μᾶλλον αἱ ἀπόγειαι γίνονται μετὰ τοῦτο.  
(25) ἀπὸ μόνου δὲ τοῦ Νεῖλου δοκοῦσιν οὐκ ἀποπνεῖν αὖραι ἢ ἐλάχιστα, διότι  
θερμὸς ὁ τόπος καὶ ἐξ οὗ καὶ εἰς ὃν ρεῖ· αἱ δ' αὖραι πυκνουμένου τοῦ ὕγρου εἰσὶ.  
διὸ καὶ οὐδὲ τῶν ἐν τῇ Λιβύῃ ποταμῶν οὐδ' ἀφ' ἑνὸς αὖραι οὐδαμῶς· ἅπαντες γὰρ  
θερμοί. τοῦτο δὲ δήλον, ὅτι οὐδ' ἀπὸ τῶν περὶ Βαβυλῶνα καὶ Σοῦσαν, καὶ ὅλως 180  
πρὸς τοὺς ἐμπύρους τόπους. καίτοι φασὶ γε θαυμαστῶς καταψύχεσθαι τὸν ἀέρα  
πρὸς τὴν ἔω. τοῦτο μὲν οὖν ἐπισκεπτέον· τάχα γὰρ ἀποψύχεται μὲν, οὐ δύναται δὲ  
πορρωτέρω[ς] προϊέναι καὶ ποιεῖν αὖραν, ἐμπύρων ἐϋθὺ τῶν ὑποδεχομένων ὄντων  
τούτων.

(26) ἀπὸ γοῦν τῆς ἀπογείας καὶ τῆς τοιαύτης αὔρας καὶ αἱ τροπαὶ γίνονται, 185  
συναθροισθέντος τοῦ ὕγρου ἀέρος· ἢ γὰρ τροπὴ καθάπερ παλιμπνὸν ἢ τίς ἐστι  
πνεύματος, ὥσπερ ἐν τοῖς εὐρίποις τῶν ὕγρων. ὅταν γὰρ ἀθροισθῇ καὶ πλῆθος  
λάβῃ, μεταβάλλει πάλιν εἰς τὸ ἐναντίον. μάλιστα δ' ἐν τοῖς κοίλοις ταῦτα γίνεται  
καὶ ὅπου πνέουσιν αἱ ἀπόγειαι. τούτων δ' ἑκάτερον εὐλόγως· ἐν μὲν γὰρ τοῖς  
κοίλοις ὡς συναθροίζεται προσπίπτων, ἐν δὲ τοῖς ἀναπεπταμένοις διαχέεται. τῶν 190  
δ' ἀπογείων πνευμάτων ἀσθενὴς ἢ φύσις, ὥστ' οὐ δύνασθαι βιάζεσθαι πόρρω.  
συμβαίνει δὲ καὶ ἡ ἀνταπόδοσις ἀνὰ λόγον τοῦ τε πλήθους καὶ τοῦ μεγέθους,  
ὥς ἂν αἱ ἀπόγειαι πνεύσωσιν. ὁμοίως δὲ καὶ κατὰ τὰς ὥρας οἷον τὸ ὀψιαιτέρον

169 ὕγρανσίν Wildberg : ῥάσιν A : ῥίγωσιν Wim. 170 εὐσκεπεῖς A<sup>pc</sup> D : εὐσκεπεῖν A<sup>ac</sup> 171 ὑπὸ  
D† || οὔτε B : οὐδὲ A 172 δυνάμενον D† || ὅθ' αἶτε A : αἱ θ' ὅτε V<sup>a</sup> : ὅθεν αἶτε Schn.<sup>1</sup> || ποταμῶν  
D† 173 ὅλως A : fort. [ὅλ]ώς || αἱ D† || πνέουσιν D : πνέου\*\*\* A : πνέουσαι V || ἔωθεν D† 174 τοῦ  
D† || αὖραν Schn.<sup>1</sup> : θύραν A || om. αὐτὴν N || κατὰ λόγον Turn. : κατ' ὀλίγον A 175 ψεκάδια Ald.  
: δεκάδια A 176 ἡ ὕλη Bon. : ἡ ὅλως A : om. ἡ Ald. 178 post ὕγρου add. ἀέρος Gigon 179 τῶν  
ἐν τῇ Λιβύῃ ποταμῶν scripsi : τὸν ἐν τῇ λυβύῃ ποταμῶν A : ἀπὸ τῶν ἐν λιβύῃ ποταμῶν B<sup>ms</sup> || αὖραι  
Schn.<sup>1</sup> : αὖραν A 180 Σοῦσαν A : Σοῦσα Ald. 181 ἐμπύρους B : ἐμπείρους A 183 πορρωτέρω Ald. :  
πορρωτέρως A || ἐμπύρων Turn. : εὐπύρων A : ἔμπειρον V : ἔμπυρον V<sup>pc</sup> : εὐπύρων B<sup>pc</sup> 184 τούτων  
A : τόπων B<sup>ms</sup> 185 ἀπογείας Schn.<sup>1</sup> : ἀπογείας A 186 παλιμπνὸν S : πάλιν πνοή A : παλινπνὸν  
B<sup>pc</sup> : πάλιν (περὶ τῶν τροπῶν καλουμένων) πνοή B<sup>ms</sup> 189 ὅπου Turn. : ὅπως A || ἀπόγειαι Ald. :  
ἀπόγαιαι A 190 ὡς συναθροίζεται Cout. : ὡς συναθροισθήσεται A : ὁ ἀὴρ ἀθροισθήσεται Turn. || δὲ  
Schn.<sup>1</sup> : γὰρ A 192 ἀνταπόδοσις D† || ἀνὰ λόγον Wim. : ἀνάλογον A 193 ὡς ἂν αἱ D† || ὥρας οἷον  
D†

close, such that whenever it befalls (us), the result is just as if some watering happens to befall our bodies. (24) And because of this, often some locations, being hollow and well-protected from outside winds, are cold because of the local ones; for the (vapor) raised by the sun, having neither the nature to remain still nor the ability to do so, travels and produces an airflow—seeing that breezes from rivers and lakes and in general the offshore (breezes) blow at dawn, because the vapor is cooled on account of the dissipation of heat. For it is according to reason for this very breeze to come to be owing to fair weather among other things. And when drizzling and moderate rain occur, they blow more; for then material is added all around and after that offshore (breezes) occur more. (25) From the Nile alone breezes seem not to blow, or (if they do they are) the slightest ones, because the location is hot, both out of which and into which it flows; but there are breezes when the moisture is condensed. And this is why there are absolutely no breezes from a single one of the rivers in Libya; for they are all hot. And this is clear, that there are no (breezes) from the (rivers) around Babylon and Susa, and in general for the scorched locations. And yet they *say* that the air is marvelously cooled down around dawn. So this ought to be investigated; for perhaps (the air) *is* cooled, but is not able to proceed further and produce a breeze, as those (sc. locations) directly receiving it are scorched.

(26) Now then, the alternating (breezes) come from the offshore breeze and the like, when the moist air gathers together; for the alternating (breeze) is so to speak a sort of counter-blowing of air-flow, just as (happens) in straits of water. For when it gathers and acquires volume, it changes back to the opposite (direction). And these occur most of all in hollows and where the offshore (breezes) blow. Each of these (occurs) reasonably: for in the hollows, as (the moist air) pours in it is gathered together, whereas in the (areas) lying open, it is dispersed. Now the nature of the offshore breezes is weak, so that they are not able to force themselves far. And the ‘repayment’ too happens in proportion to both volume and power, as the offshore (breezes) blow. And in the same way too (the ‘repayment’ happens)

ἢ τὸ πρότερον ἐμβάλλειν αὐτάς. (27) γίνεται δὲ καὶ ἀνάγκασίς τις τῶν ἀνέμων  
 ὥστ' ἀντιπνεῖν αὐτοῖς, ὅταν ὑψηλοτέροις τόποις προσπνεύσαντες ὑπεράραι μὴ 195  
 δύνωνται. διὸ ἐνιαχοῦ τὰ νέφη τοῖς πνεύμασιν ὑπεναντία φέρεται, καθάπερ καὶ  
 περὶ Αἰγείας τῆς Μακεδονίας βορέου πνέοντος πρὸς τὸν βορέαν. αἴτιον δ' ὅτι τῶν  
 ὁρῶν ὄντων ὑψηλῶν τῶν τε περὶ τὸν Ὀλυμπον καὶ τὴν Ὀσσαν, τὰ πνεύματα  
 προσπίπτοντα καὶ οὐ(χ) ὑπεαίροντα τούτων ἀνακλᾶται πρὸς τοῦναντίον, ὥστε 200  
 καὶ τὰ νέφη κατώτερα ὄντα φέρεται ἐναντίως. συμβαίνει δὲ καὶ αὐτὸ τοῦτο παρ'  
 ἄλλοις. (28) ἐνιαχοῦ δὲ καὶ ὑπ' αὐτοὺς τοὺς ἐτησίαις ἀντίπνοιοι γίνονται τῷ βορέᾳ  
 διὰ τὴν περίκλασιν, ὥστε καὶ ἐναντιοδρομεῖν τὰ πλοῖα, καθάπερ καὶ περὶ τὸν πόρον  
 τὸν ἐκ Χαλκίδος εἰς Ἰωρῶπόν, οὓς δὴ καλοῦσιν παλιμβορέας. γίνεται δὲ τοῦτο  
 σχεδὸν ὅταν ὦσι λαμπρότατα· τότε γὰρ μάλιστα δύναται ὡς πορρωτάτω διατείνειν,  
 ὅταν πλήθος ἦ τὸ ἀντικόπ(τ)ον. ἐνιαχοῦ δὲ διὰ τὸ προσκόπτειν σχίζειν συνέβαινε 205  
 τὸν ἄνεμον, ὥστε τὸ μὲν ἐκέισε τὸ δὲ δεῦρο [ὁ]ρεῖν, καθάπερ καὶ τὸ ὕδωρ ὑπὸ μιάς  
 πηγῆς καὶ τῆς αὐτῆς ῥέον.

(29) ἀπλῶς δὲ οἱ τόποι πολλὰς ποιοῦσι τῶν πνευμάτων μεταβολάς, ἄλλως τε  
 καὶ τὸ σφοδρότερα καὶ ἡρεμέστερα γίνεσθαι, καθάπερ ἐὰν διὰ στενοῦ καὶ ἀχανοῦς 210  
 πνέῃ. σφοδρότερον γὰρ αἰεὶ καὶ λαμπρότερον τὸ διὰ τοῦ στενοῦ καθάπερ ὕδατος  
 ῥεῖθρον· ἐκβιάζεται γὰρ καὶ διωθεῖ μάλλον ἄθρόον. διὸ καὶ ἐν τοῖς ἄλλοις ἀπνοίας  
 οὔσης, ἐν τοῖς στενοῖς αἰεὶ πνεῦμα. μέν(ειν) γὰρ ὁ ἀήρ οὐ δύναται διὰ τὸ πλήθος· ἢ  
 δὲ τούτου κίνησις ἄνεμος. ὅθεν καὶ ἐν τοῖς στενωποῖς ὅταν κατακλεισθῶσι καὶ συμ-  
 πέσωσι λαμπροὶ πνέουσι καὶ ἐν ταῖς πύλαις, καὶ αἱ θυρίδες ἔλκουσιν αἰεὶ καὶ πνοὴν 215  
 παρέχουσιν. πάντων γὰρ τούτων καὶ τῶν τοιούτων ἡ αὐτὴ καὶ μία τις ἢ εἰρημένη  
 αἰτία. (30) πάλιν δ' ἔνιοι τόποι διὰ τὴν κοιλότητα καὶ διὰ τὸ περιέχεσθαι μείζο-  
 σιν, ἐγγὺς ὄντες γε ἢ ἐγγυτέρω ἐτέρων ταῖς ἀρχαῖς, ὅλως ἄπνοοι τυγχάνουσιν. οἱ  
 δὲ πορρωτέρω πνευματώδεις, ὥσπερ καὶ περὶ Θετταλίαν καὶ Μακεδονίαν συμ-  
 βαίνει κατὰ τοὺς ἐτησίαις· οὐ γὰρ πνέουσι παρ' αὐτοῖς, ὡς εἶπεῖν, ἐν δὲ ταῖς νήσοις 220  
 λαμπροὶ ταῖς μακρὰν ἀπρητημέναις. αἴτιον δὲ τὸ τὰς χώρας κοίλας καὶ ἐπισκεπεῖς

194 τὸ πρότερον A : τὸ προιαίτερον B<sup>ms</sup> (om. τὸ S) : πρωιαίτερον Schn.<sup>1</sup> || ἐμβάλλειν H : ἐμβάλειν A ||  
 αὐτάς D† 195 ὥστ' D† || αὐτοῖς Turn. : αὐτοῖς A 196 δύνωνται S : δύνανται A || om. καὶ Schn.<sup>1</sup> 197  
 Αἰγείας Schn.<sup>1</sup> : λιγγίας A 198 Ὀσσαν Schn.<sup>1</sup> : ὅσταν A 199 οὐχ Ald. : οὐ A : οὐ B<sup>ms</sup> || ὑπεαίροντα  
 τούτων Turn. : ὑπεαίρονται τούτων A 200 φέρεται Wood : φέρουσιν A 202 πόρον V : πόρρον A  
 203 εἰς ἰωρῶπόν Turn. : εἰς ὠρῶπόν B<sup>ms</sup> : ἰσόρροπον A || παλιμβορέας S : πάλιν βορέας A : παλινβορέας  
 B : παλινβορέαι B<sup>ms</sup> 204 λαμπρότατα A : λαμπρότατοι Turn. 205 ἀντικόπτον Furl. : ἀντικόπον  
 A || σχίζειν συνέβαινε A : σχίζεσθαι συμβαίνει Schn.<sup>1</sup> 206 ἐκέισε τὸ δὲ D† || ῥεῖν Gryn. : ὀρεῖν A :  
 ὀρεῖν D || μιάς D† 208 ἄλλως A : ἄλλας Schn.<sup>1</sup> 211 ἀπνοίας B<sup>pc</sup> : ἀπνοίας A 212 μένειν γὰρ B<sup>ms</sup>  
 : μέν γὰρ A : γὰρ μὲν R 213–214 συμπέσωσι Turn. : συμπέσουσι D : συμπέ\*\*\*\*\* A 214 αἱ θυρίδες  
 D† 215 πάντων γὰρ D† || τις ἢ εἰρημένη D† 216 πάλιν M : πόλιν A : πόλυν S<sup>pc</sup> 217 ὄντες Turn. :  
 ὄντος A : ὄντως V || ἐτέρων Turn. : ἕτερον A || ante ἀρχαῖς add. τῶν ἀνέμων Gigon || ἄπνοοι vel ἀπνοῖ  
 Turn. : ἀπόπνωσι A : ἀποπνεύματοι Schn.<sup>1</sup> 219 ταῖς B<sup>pc</sup> : τοῖς A

according to the hours (at which the offshore breezes blow), that is, whether these rush in later or earlier. (27) A sort of bending back of the winds also occurs so that they blow against themselves, when they flow against high places and are not able to rise above them. This is why in some places the clouds travel in an opposite direction to the winds, as indeed (occurs) around Aegeae in Macedonia when a Boreas blows against Boreas. And the explanation is that, as the mountains are high around Olympus and Ossa, the winds striking, but not rising above them, bend back in the opposite direction, so that the clouds too, being lower, travel in the opposite direction. And this same thing also occurs in other places. (28) Now in some places too around the time of these Etesians, contrary-winds occur (in opposition) to Boreas because of this bending around, such that ships even run in the opposite direction, just as in fact (occurs) on the passage from Chalcis to Oropus, which (winds) they call Reverse-Boreas. Now this occurs by and large when (the winds) are most vigorous; for at that time they are most able to extend the farthest, when the counter-striking (wind) is massive. And in some places it happens that the wind splits by striking against (something), so as to flow one (part) here the other there, in fact just like water flowing from one and the same source.

(29) Now basically, locations produce many changes in winds, especially becoming more violent or calmer, according to whether it blows through a narrow or a vast (space). For what (moves) through what is narrow is always more violent and more vigorous, just like a stream of water; for (moving) in a mass it forces itself out and pushes through more. And this is why when in other (locations) it is windless, in the narrows there is always an air-flow. For the air is not able to stand still, owing to its quantity; and the movement of this (sc. air) is wind. For this reason, too, when (air-flows) are shut in and meet in narrow alleys and in gateways they blow vigorous, and windows always draw (air) and produce a blowing. For of all of these and similar (phenomena) there is the same and a single explanation, the one mentioned. (30) Again, some locations because of hollows and because of being surrounded by higher (ground), though they are near or at least nearer than other (locations) to the origins (of the winds), are wholly without wind. But those farther away are windy, as happens in Thessaly and Macedonia at the time of the Etesians; for they do not blow in their own (locations), so to speak, but in the far removed islands (they are) vigorous. The explanation is

εἶναι, ταῖς δὲ νήσοις οὐκ ἐπιπροσθεῖται ἡ φορά. κωλύονται δὲ καὶ οὗτοι καὶ ὅλως  
 πᾶς ἄνεμος πνεῖν ἢ διὰ τὴν ἀπόστασιν—οὐ γὰρ δύνανται διατείνειν εἰς τὸ πορ-  
 ρωτέρω διὰ τὸ μῆκος—ἢ δι' ἐπιπρόσθεσιν τινων ἢ τρίτον εἰς τὸ πνεῦμα ἐγχώριον  
 ἀντιπνεῖ καὶ κρατεῖ. (31) ὅτε δὲ συμβαίνει κατὰ τὴν ὥραν τοὺς ἐτησίας ἐπαίρε-  
 σθαι καὶ τὴν τροπαίαν πνεῖν περὶ Μακεδονίαν ὥσπερ σύμπτωμα θετέον. πανταχοῦ 225  
 γὰρ τῆς μεσημβρίας ἀπολήγει τὰ πνεύματα διὰ τὸν ἥλιον, ἅμα δὲ τῇ δέιλῃ πάλιν  
 αἴρεται. συμβαίνει δὲ κατὰ τὸν αὐτὸν καιρὸν τὴν τε τροπαίαν πρὸς ταῖς ἀπογείαις  
 αὔραις καὶ τοὺς ἐτησίας ἐπαίρεσθαι πάλιν· οὐ γὰρ δὴ τὴν ἀνάκλασιν τῆς ἀπὸ τοῦ  
 Ὀλύμπου καὶ τῆς Ὀσσης τῶν ἐτησίων αἰτιατέον. τὴν μὴ ἐρμηνεύουσιν ἢ μέτριοι  
 παντελῶς τὰ μὲν οὖν συμπτώματα πειρατέον ἅπασι διαιρεῖν. (32) ἐκεῖνο δ' ἂν 230  
 δόξειεν ἄτοπον καὶ παράλογον εἶναι· διὰ τί τῶν ὑψηλῶν τόπων τὰ μὲν προσήνεμα  
 πάντα ἀπνεύματα τυγχάνει, τὰ δ' ἐπισκεπῇ πνευματώδη καὶ οὐ μετρίως ἀλλὰ σφο-  
 δρῶς. οἷον ἐν Πλαταιαῖς τῆς Βοιωτίας, κειμέναις πρὸς τὸν βορέαν, ὁ μὲν βορέας  
 εὐδιεινός· ὁ δὲ νότος μέγας καὶ χειμερινός καὶ ἐπιπροσθούντος τοῦ Κιθαιρώνος. καὶ  
 πάλιν παρὰ μὲν τὰ κοῖλα τῆς Εὐβοίας ὑπὸ τοὺς ἐτησίας τροπαῖαι παραθέουσιν, ἐν 235  
 Καρύστῳ δὲ τηλικούτοι πνέουσιν ὥστε ἐξάσιον εἶναι μέγεθος. (33) ἔτι δὲ τῆς Κου-  
 ριάδος ἐν τῷ καλουμένῳ Φαι(lac. 8 litt.) κειμένῳ πρὸς νότον ὑψηλῷ καὶ ἀποτόμῳ,  
 θαυμαστόν τι κύμα μὲν εἰσπίπτει, πνεῦμα δ' οὐκ ἔστιν· ἀλλὰ καὶ τὰ πλοῖα προσ-  
 ορμίζονται τοῖς λειωτοῖς, ἀλιμένων ὄντων τῶν τόπων καὶ οὐδέποτε [οὐδὲ τὰ πλοῖα  
 προσορμίζοντα τοῖς λειωτοῖς ἀλειμένον] (...) πλησία καὶ τὰ συμβαίνοντα θεωρεῖν 240  
 ἐστίν. αἴτιον δὲ τοῦ μὲν μὴ δικνεῖσθαι τὸ πνεῦμα πρὸς τὴν γῆν τὸ μὴ ὑπάγειν τὸν  
 ἀέρα μῆδὲ ρεῖν, ὅπερ συμβαίνει διὰ τὸ ὕψος πρὸς [κα](lac. 8 litt.) οὐχ ὑπεραίρων.  
 ἔτι δ' ὑπεξάγειν αἰεὶ δεῖ, καὶ μὴ ἴστασθαι τὸν ἀέρα φανερόν. ἐν γὰρ τοῖς οἰκῆμα-  
 σιν, εἰ τις ἂν κατακλείσῃ τὰς θύρας ἤττον διὰ θυρίδων ἢ πνοὴ φέρεται. πληρὴς γὰρ  
 ὢν καὶ μὴ ὑπεξάγον, οὐκ εἰσδέχεται τὸν ἔξωθεν ἀέρα. πρὸς γὰρ τὸ κενὸν ἢ φορά· 245

221 οὐκ Sider : οὐδ' A : οὐδὲν Turn. || ἐπιπροσθεῖται ἡ φορά Bon. : ἐπίπροσθεν (lac. 7 litt.) ἡ φορά A (sine lac. r) : ἐπίπροσθεν τῆς φορᾶς Schn.<sup>1</sup> 223 ἢ δι' B<sup>pc</sup> : εἰ δ' A || ἐπιπρόσθεσιν A : ἐπιπρόσθησιν Turn. || εἰ τὸ B<sup>pc</sup> : ἢ τὸ A : εἴ τι Turn. 224 ὅτε A : ὅτι Schn.<sup>1</sup> || ante ὥραν add. αὐτὴν Gigon 225 τὴν B<sup>pc</sup> : τὸν A 227 πρὸς Ald. : πρὶν A : πρὸν B 228 τῆς A : τὴν Turn. 229 Ὀσσης Schn.<sup>1</sup> : Ὀσσης A 229–230 ἢν μὴ ἐρμηνεύουσιν ἢ μέτριοι παντελῶς A, obelis inclusi : post μὴ lac. indic. Wim. : οἱ pro ἢ D, ἢ pro ἢ Schn.<sup>1</sup> 232 ἐπισκεπῇ Turn. : ἐπισκοπῇ A 233 κειμέναις Turn. (cf. κειμένοις Vasc.) : κειμένης A 234 ὁ δὲ νότος D† || τοῦ D† 235 εὐβοίας D† || τοὺς Turn. : τῆς A 236 καρύστῳ Turn. : καρίστῳ A 237 Φαι(lac. 8 litt.) A : Φαι(στῶ) Schn.<sup>5</sup> || ὑψηλῷ S : ὑψηλὸν A : ὑψηλῶν B<sup>pc</sup> 238–239 προσορμίζονται Schn.<sup>4</sup> : προσορμίζοντα A 239 ἀλιμένων Gryn. : ἀλειμένων A 239–240 post ἀλιμένων add. ὄντων τῶν τόπων καὶ οὐδέποτε οὐδὲ τὰ πλοῖα προσορμίζοντα τοῖς λειωτοῖς ἀλειμένων A : om. cett. codd. : οὐδὲ τὰ πλοῖα ... ἀλειμένων seclusi (dittogr.), cf. Schn.<sup>5</sup> [καὶ οὐδέποτε ... ἀλειμένων] 240 lac. indic. Wood : (τῶν) Schn.<sup>5</sup> || πλησία A : πλησίον Anon. 241 τὸ V : τῷ A 242 μῆδὲ ρεῖν Turn. : μὴ δέρειν A || πρὸς κα(lac. 8 litt.) A, κα seclusi || οὐχ ὑπεραίρων Ald. : οὐχὶ περαίρων A : οὐχὶ περαιτέρω V<sup>a</sup> : οὐχ ὑπεραίρει Gigon 243 ἔτι A : ὅτι B<sup>ms</sup> 244 εἰ Bon. : οὐ A



that the lands are hollow and sheltered, whereas in the islands the motion (of the winds) is not obstructed. Now these and in general every wind are prevented from blowing either because of the distance—for they are not able to extend further due to the length—or because of an obstruction of some things, or, third, if the local wind blows in the opposite direction and gains mastery. (31) Whenever in its season the Etesians happen to rise *and* the alternating (breeze) to blow around Macedonia, it must be assumed to be a coincidence. Indeed everywhere the winds cease at noon owing to the sun, but at the same time they rise again in the afternoon. And both the alternating (breeze blowing) against the offshore breezes and the rising of the Etesians again happen on the same occasion; for surely one must not give as the cause of the Etesians the bending back of the (breeze) from Olympus and Ossa. † ... † Therefore, one must attempt in every case to determine the coincidences. (32) But this (i.e. what follows) might seem to be strange and contrary to reason: why, of the high places, all those facing the wind happen to be still, whereas the sheltered ones are windy and not moderately so but violently. For example, in Plataea of Boeotia, which lies facing Boreas (i.e. the north), Boreas is calm but Notos is powerful and stormy, even though Mt. Cithaeron stands before it. And again, alternating (breezes) run past the hollows of Euboea at the time of the Etesians, whereas in Carystus (winds) blow so great that their power is extraordinary. (33) And further, in the (part) of Kourion called Phai ..., lying toward the south, elevated and sheer, a marvelous wave breaks, yet there is no wind; but in fact ships are anchored in the smooth (areas), the locations being without harbors, and never <...> nearby and it is possible to watch the occurrences. And the cause of the wind not reaching the land is that the air does not yield or flow away, which occurs because of the elevation towards ... not surmounting. But moreover, it must always withdraw; in fact, that the air does not stand still is obvious. For in houses, if someone shuts the doors, the blowing (i.e. a draft) through the windows moves less. For being full (of air) and (that air) not withdrawing, (a house) does not receive the outside air. For movement is toward the void;

διὸ καὶ τὸ ἔλκειν οὐ καλῶς λέγεται. (34) τὰ δὲ πρὸς βορέαν καὶ ὅλως κατ' ἄνεμον ἐπισκεπῇ διὰ τοῦτο πνευματωδέστερα, διὸ συμβαίνει συναθροιζόμενον ἐπὶ τὸ ὕψος οἶον ὑπερχεῖσθαι τὸ πνεῦμα καὶ ἐμπίπτειν ἀθρόον (*lac. 20 litt.*) κῶς. ἥ γὰρ ἂν ἐπιβρίση, ταύτῃ κατέρραξεν ἀληθῶς ἀθρόον. γίνονται δὲ καὶ αἱ καταιγίδες ἐν τοῖς τοιοῦτοις· συστροφὴ γὰρ ἐνταῦθα καὶ ἀθροισμὸς πνεύματος. ὥσθ' ὅταν ἐκραγῇ καθάπερ πληγὴν ἐποίησεν. ἰσχυρὸν γὰρ τὸ ἀθρόον καὶ συνεχές, ὥσπερ καὶ ἐπὶ τῶν τυφώνων. ἃ μὲν οὖν διὰ τοὺς τρόπους συμβαίνει ταῦτα καὶ τοιαῦτα τυγχάνει. πολλὰ δ' ἐστὶ καὶ πολλαχοῦ περὶ ὧν ἐκάστου τῆς ἱστορίας λέγει(ν).

(35) τὰ δὲ τοιάδε κοινὰ πάντων τῶν ἀνέμων, οἶον ὅσα σημειώδη καθ' ἕκαστον ἐν τῷ μέλλειν· ὁ γὰρ ἀήρ ἀχλυσούμενος κατὰ πυκνότητα καὶ μακρότητα [μ]ῇ κατὰ θερμότητα καὶ ψύξιν ἢ κατ' ἄλλην τινὰ τοιαύτην διάθεσιν, ἐξεδήλωσεν αἰεὶ τὴν ἐπιούσαν πνοήν. ὁμοιοπαθὴ γὰρ τὰ κατὰ τὸν ἀέρα, καὶ προτερεῖ τὸν ἀνέμον εἰς τὴν ἡμετέραν αἴσθησιν. ὡσαύτως δὲ καὶ ἐπὶ τῆς θαλάττης καὶ τῶν ὑδάτων ἔστι τις τὰ αὐτὰ σημεία λαβεῖν· ἐπεὶ καὶ τὰ κύματα προανιστάμενα καὶ προεκπίπτοντα σημαίνει τοὺς ἀνέμους. προωθεῖται δὲ (τὰ κύματα οὐ) συνεχῶς ἀλλὰ κατὰ μικρόν· τοῦτο δὲ προωθεῖ ἀλλ' ὁ προῶσε καὶ πάλιν (ὑστερον ὑπ') ἄλλης πνοῆς ἐκινήθη μαρνανθείσης τῆς πρώτης, εἴθ' οὕτως αἰεὶ προωθουμένης προσέρχεται. παρόντος δὲ τοῦ κινουμένου φανερόν ὅτι καὶ τὸ κινοῦν ἤξει. συμβαίνει δὴ καὶ προτερεῖν τὰ κύματα τῶν πνευμάτων· ὑστερον δὲ διαλύονται καὶ παρακμάζουσι, διὰ τὸ δυσκινητότατον καὶ δυσκαταπαυστότερον. (36) κοινὰ δὲ καὶ τὰ τοιαῦτα πλειόνων, οἶον ἀστέρων τε (διαττόντων) καὶ ἄλων καὶ παρηγίων φάσις καὶ ἀπομάρανσις ἢ ῥήξις καὶ εἴ τι τοιοῦθ' ἕτερον. πρότερον γὰρ ὁ ἀήρ (ὁ) ἄνω τῷ πάσχειν ἀποδηλοῖ

246 βορέαν vel βορράν Turn. : βοράν A || κατ' ἄνεμον Turn. : κατήνυμα A : κατ' ἀνέμους Wim. 247 πνευματωδέστερα V<sup>a</sup> : πνευματοδέστερα A || διὸ A : διὸ καὶ V : διότι Turn. 248 (*lac. 20 litt.*) κῶς A : *lac.*, om. κῶς D : sine *lac.*, om. κῶς R 249 ἐπιβρίση A : ἐπικυρίση D : ἐπικηρίση V : ἐπικυρίσης S || κατέρραξεν Gryn. : κατέραξεν A : κατέραξον D : κατέρρηξεν Schn.<sup>5</sup> 250 συστροφὴ D : συστροφή A : συστροφαι Schn.<sup>1</sup> 253 λέγειν Ald. : λέγει A 255 ἀχλυσούμενος D† || ἡ Turn. : μὴ A 256 θερμότητα D† 257 ὁμοιοπαθὴ D† || προτερεῖ Turn. : προτυρεῖ A : προτηρεῖ D || τὸν ἀνέμον A : τῶν ἀνέμων Turn. 260 προωθεῖται (*lac.*) δὲ B, (τὰ κύματα οὐ) addidi : προωθεῖταις (*lac. 11 litt.*) δὲ A : προωθεῖται δὲ (οὐ) Turn. 261 τοῦτο δὲ προωθεῖ A : τὸ δὲ προωσθέν Wim. || ἀλλ' ὁ A : ἄλλο Wim. || προῶσε A : προῶσαι V : προεῶσε Turn. || (ὑστερον ὑπ') Wildberg : *lac. 8 litt.* A : (ὑπ') Turn. 262 προωθουμένης A : προωθούμενα Schn.<sup>1</sup> || προσέρχεται A : προέρχεται Gigon 263 κινουμένου B<sup>ms</sup> : κειμένου A || δὴ A : δὲ Furl. p. 94 || προτερεῖν scripsi : ὑστερεῖν A : ὑστερεῖν post τὰ κύματα S 264 δὲ A : γὰρ Wim. || διὰ τὸ B<sup>ms</sup> : τοιαί A : om. V<sup>a</sup> : τοίαι R 265 δυσκαταπαυστότερον B<sup>pc</sup> : δυσκατακαυστότερον A 266 τε διαττόντων καὶ Wim. (διαθέοντων Bon.) : τελες (*lac. 7 litt.*) σκε A || ἄλων καὶ παρηγίων Turn. : ἄλλων καὶ παρ' ἡλίῳ A : om. ἄλων καὶ Wim. 267 εἴ τι Turn. : ἐπὶ A || τοιοῦθ' ἕτερον Furl. (cf. τοιοῦτο ἕτερον Turn.) : τοτουθεστερον A : τοι οὐθέστερον D || (ὁ) Schn.<sup>1</sup> || τῷ Turn. : τὸ A || ἀποδηλοῖ V<sup>a</sup> : ἀποδηγ<sup>c</sup> A D

258–263 ὡσαύτως δὲ καὶ ... τὸ κινοῦν ἤξει] *Pr.* 23.11 266 ἀστέρων τε (διαττόντων)] *Pr.* 26.23, [Thphr.] *Sign.* 13.83–84, 37.270–272

and this is why 'there is a draft' is not well said. (34) The (places) sheltered against Boreas and from wind generally (in fact) have a greater flow of air for the reason that it turns out that the wind, massing together on high, as it were overflows and falls in a mass .... For on whatever it presses heavily, there it rushes down truly in a mass. And squalls occur too in such (locations); for here there is a twisting together and aggregation of wind. So that when it breaks out, it produces so to speak a strike. For the mass (of air) is strong and continuous, as in the case of whirlwinds as well. Therefore, what happens because of these locations are these and similar things. Now there are many (such occurrences) and in many places, to speak about each of which is (the subject) of the investigation.

(35) Now the following are common to all winds, that is, those signifiers in each case into what (wind) is about (to blow): for the air darkening according to density and rarity or according to heat and cold or according to some other such condition, always reveals the imminent wind. For what is related to the air is similarly affected, and precedes the wind to our perception. And similarly too in the case of the sea and the (other) bodies of water, it is possible for some people to grasp the same signs—since even the waves rising and falling beforehand signify the winds. ⟨The waves⟩ are pushed forward ⟨not⟩ continuously, but little by little: this one pushes, but what is pushed is also in turn ⟨later⟩ set in motion ⟨by⟩ another wind, as the first one dies, so in this way being pushed they constantly come forth. Now when what is set in motion is present, it is obvious that what sets it in motion will arrive as well. Surely it also happens that the waves come before the winds; but they break up and fade away later, because what is most difficult to set in motion is also most difficult to stop. (36) And the following too are common to very many (winds), for instance, (the) appearance and (the) fading away or breaking up of ⟨shooting⟩ stars and haloes and parhelia and any other such thing. For the upper air reveals beforehand, by what is happening to it,

τὴν τῶν πνευμάτων φύσιν. ἔστι δὲ τὸ ἐπὶ τέλει μεγίστους εἶναι· καὶ γὰρ τοῦτο κοινὸν πλείοσιν. ὅταν δ' ἄθροον ἐκπνεύσωσιν, μικρὸν γίγνεται τὸ λοιπόν. τὰ μὲν οὖν τοιαῦτα καθάπερ εἴρηται κοινὰ πως τῆς οὐσίας.

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(37) ἐστὶ δὲ τὰ καθ' ἑκάστον ἴδια κατὰ τὴν ἐκάστου φύσιν καὶ θέσιν, ὧν τὰ μὲν τοῖς τόποις μερίζεται, καθ' οὓς καὶ πρὸς οὓς αἰ πνοαί, τὰ δὲ ταῖς ἀρχαῖς ἀφ' ὧν, τὰ δ' ἄλλοις τοιούτοις. ἰδιώτατα δ' οὖν, ὡς εἰπεῖν, τὰ περὶ τὸν καικίαν καὶ τὰ περὶ τὸν ζέφυρον ἔστιν. ὁ μὲν γὰρ καικίας μόνος ἐφ' ἑαυτὸν ἄγει τὰ νέφη, καθάπερ καὶ ἡ παροιμία λέγει· «ἔλκων ἐφ' αὐτὸν ὥστε καικίας νέφος». (38) ὁ δὲ ζέφυρος λειότατος τῶν ἀνέμων· καὶ πνεῖ δειλῆς καὶ ἐπὶ τὴν γῆν καὶ ψυχρὸς, τῶν ἐνιαυσίων ἐν δυοῖν μόνον ὥραις ἐάρος καὶ μετοπώρου. πνεῖ δ' ἐνιαχοῦ μὲν χειμέριος, ὅθεν καὶ ὁ ποιητὴς δυσαὴ προσηγόρευσε, ἐνιαχοῦ δὲ μετρίως καὶ μαλακῶς. διὸ καὶ Φιλόξενος ἠδεῖαν αὐτοῦ πεποίηκε τὴν πνοήν. τοῖς μὲν ἐκτρέφει, τοῖς δ' ἀποκλείει καὶ διαφθείρει τελείως. (39) αἴτιον δὲ τῷ μὲν καικίᾳ διότι πέφυκε κυκλοτερεῖ φέρεσθαι γραμμῇ, ἥς τὸ κοῖλον πρὸς τὸν οὐρανὸν καὶ οὐκ ἐπὶ τὴν γῆν ἐστίν, ὥσπερ τῶν ἄλλων, διὰ τὸ κάτωθεν πνεῖν. πνέων δ' ἐπὶ τὴν ἀρχὴν (καὶ ἄνωθεν), οὗτος δ' ἐφ' αὐτὸν ἄγει τὰ νέφη. πρὸς δὲ γὰρ ἡ πνοὴ καὶ τῶν νεφῶν ἐντεῦθεν φορὰ. (40) ὁ δὲ ζέφυρος ψυχρὸς μὲν διὰ τὸ πνεῖν ἀφ' ἐσπέρας ἀπὸ θαλάττης καὶ πεδίων ἀναπεπταμένων καὶ ἔτι μετὰ χειμῶνα τοῦ ἥρος, ἄρτι τοῦ ἡλίου κρατούντος, καὶ μετοπώρου πάλιν, ὅτ' οὐκέτι κρατεῖ. τοῦ (δὲ) βορέου ἦττον ψυχρὸς διὰ τὸ ἀφ' ὕδατος πνευματουμένου καὶ μὴ χιόνος πνεῖν. οὐ συνεχῆς δὲ διὰ τὸ μὴ κρατεῖσθαι τὸ γινόμενον πνεῦμα· οὐ γὰρ ὥσπερ ἐν γῇ (ὑπομένει τὴν εἰλην), ἀλλὰ πλανᾶται

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268 ἔστι A : ἔτι Turn. || εἶναι Ald. : ἔστι A 268–269 τοῦτο κοινὸν Turn. : τοῦτοις κενὸν A 269 δ' scripsi : γὰρ A || ἐκπνεύσωσιν Bon. ex Pr. 26.25 : ἐμπνεύσωσιν A 272 ἀφ' Turn. : ὑφ' A 273 καικίαν Turn. : ἀπαρκτίαν A 274 καικίας Turn. : ἀπαρκτίας A || ἑαυτὸν A : αὐτὸν Ald. 275 ἔλκων A : ἐλκῶν Ald. || νέφος A : νέφη Ald. 276 λειότατος D† || δειλῆς Bon. ex Pr. 26.35a : δειλῶς A : δειλὸς V || γῆν καὶ D† 277 ἐάρος V<sup>a</sup> : ἐάρειν D† : ἐαρινῇ Furl. || ὅθεν D† 278 δυσαὴ B<sup>ms</sup> : αὖσαι A : αὖσας N || μετρίως A : μέτριος B<sup>pc</sup> || μαλακῶς A : μάλακός B<sup>pc</sup> 279 ἠδεῖαν Aloysius Lollinus ap. Bon. : ἰδίαν A || τοῖς A : (καὶ τῶν καρπῶν) τοὺς Furl. || τοῖς A : τοὺς Furl. || ἀποκλείει A : ἀπολλύει Furl. : ἀποκαίει Gigon 280 διαφθείρει Turn. : διαφέρει A 281 ἥς B<sup>ms</sup> : εἰς A || οὐκ ἐπὶ Bon. ex Pr. 26.29 : οὐ περὶ A 282 ἀρχὴν (lac. 10 litt.) οὗτος δ' A (sine lac. V<sup>a</sup>), (καὶ ἄνωθεν) addidi : ἀρχὴν, οὕτως [δ'] Turn. 283 ante φορὰ add. ἡ Schn.<sup>1</sup> 286 (δὲ) βορέου Anon., cf. βορέου (δὲ) Turn. 287 κρατεῖσθαι A : κρατεῖν Gigon 288 (ὑπομένει τὴν εἰλην) Cout. ex Pr. 26.52, cf. (ὑπομένει τὴν ὕλην) Bon. : post ἐν γῇ lac. indic. Wim.

268–269 ἔστι δὲ τὸ ... τὸ λοιπόν] Pr. 26.25 274–275 ὁ μὲν γὰρ καικίας ... καικίας νέφος] Mete. 2.6.364b12–14, Pr. 26.1.940a18–19, 26.29.943a32–34 275–276 ὁ δὲ ζέφυρος λειότατος τῶν ἀνέμων] Pr. 26.31.943b21–22, 26.52.946a17–19, 26.55.946b21–22 278 ὁ ποιητὴς δυσαὴ προσηγόρευσε] Hom. Il. 23.200, Od. 5.295, 12.289 278–279 ἐνιαχοῦ δὲ μετρίως ... τὴν πνοήν] Pr. 26.31.944a2–3, 26.55.946b29–31 280–282 αἴτιον δὲ τῷ ... κάτωθεν πνεῖν] Pr. 26.1.940a21–23, 26.29.943a36–b3 282–283 πνέων δ' ἐπὶ ... ἐντεῦθεν φορὰ] Mete. 2.6.364b12–14, Pr. 26.1.940a18–19, 26.29.943a32–34 284–287 ὁ δὲ ζέφυρος ψυχρὸς ... μὴ χιόνος πνεῖν] Pr. 26.52.946a20–26

the nature of the winds. And it is (true) that (winds) are most powerful at the end, for this is indeed common to very many. But when they blow out in a mass, little remains. Such things, then, as has been said, are in a way common to the essence (of wind).

(37) The particular characteristics of each (wind), however, correspond to its nature and position, of which some are attributable to their locations, over which and towards which the winds (blow), some to the sources from which (they come), and some to other such things. Now the most particular characteristics, so to speak, are those associated with Caecias and those associated with Zephyrus. For Caecias alone brings the clouds to itself, as indeed the proverb says: “drawing a cloud to himself, such as Caecias does.”

(38) Zephyrus is smoothest of the winds; it blows in the afternoon and towards the land and cold, in only two seasons of the year, spring and autumn. But in some places it blows stormy, for which reason in fact the poet (i.e. Homer) named it “ill-blowing”, and in other places (it blows) moderately and softly. And this is why Philoxenus rendered its blowing “sweet”. For some (peoples) it is nourishing, but for others it precludes (nourishment) and so is completely destructive. (39) The explanation in the case of Caecias is that it naturally travels in a circular line, the curve of which is towards the sky and not to the earth, like the others, since it blows from below. And blowing to its source (and from above), this (wind), however, brings the clouds to itself. For towards whatever (place) the blowing is, a movement of the clouds is from there as well. (40) Zephyrus is cold because it blows from the west—from the sea and open plains—and further (because it blows) after winter in spring, just when the sun is gaining mastery, and again in autumn, when (the sun) no longer has mastery. (But) it is less cold than Boreas because it blows from evaporating water and not from snow. And it is not continuous, because the flow of air as it comes to be is not mastered; for it does not (await the sun’s heat) as if it were on land, but it wanders

διὰ τὸ ἐφ' ὑγροῦ βεβηκέναι. (41) καὶ [ἐφ'] ὁμαλὸς διὰ τοῦτο ἐστίν. οὐ γὰρ [βορίαν  
καὶ νότον πρὸς ἐσπέραν δ' οὐκ ἕτερος οὐδὲ τις ἐστί] (ἀπ' ὁρέων πνεῖ οὐδὲ βίᾱ 290  
τηκομένου, ἀλλὰ ῥαδίως) (ὥς) περ δι' αὐλοῦ ῥέων. τὰ μὲν γὰρ πρὸς βορέαν καὶ  
νότον (ὀρεινά)· πρὸς ἐσπέραν δ' οὔτε ὄρος οὔτε γῆ ἐστίν, ἀλλὰ τὸ Ἀτλαντικὸν  
πέλαγος, ὥς(τε) ἐπὶ τῆς γῆς φέρεται. τῆς (δὲ) δείλης ἢ πνοῇ διὰ τὸν τόπον. πάντα  
γὰρ μετὰ τοῦ ἡλίου διαχέοντος τὸ ὑγρὸν ἢ ἀτμίζοντος γίνεται ἢ συνεργούντος εἰς 295  
τὴν ἀρχήν. ὅταν οὖν εἰς τὸν τόπον ἀφίκηται, καὶ ἡ πνοή. καὶ τῆς νυκτὸς παύεται  
διὰ τὸ ἐλλείπειν τὴν τοῦ ἡλίου κίνησιν. (42) ἄγει δὲ καὶ νεφέλας μεγίστας, ὅτ' ἐκ  
πελάγους πνεῖ καὶ κατὰ (θ)άλατταν, ὥστε ἐκ [προ]πολλοῦ συνάγειν. χειμέριος δὲ  
καὶ δυσαής, διόπερ τὰ πρότερα εἰρημένα. μετὰ δὲ τὸν χειμῶνα πνεῖ[ν] ψυχροῦ ἔτι  
τοῦ ἀέρος ῥέοντος. ἔπειθ' ὁ μετοπωρινὸς οὐ τοιοῦτος, εἰ μὴ τῷ μεγέθει λαμβάνονται 300  
τὸ χειμέριον. ἐν γὰρ τοῖς συνεχέσι τόποις μέγας πνεῖ, καθάπερ καὶ οἱ ἄλλοι. καὶ  
ληπτέον ἴσως οὕτω τὸ χειμέριον, ὥς οὐ πάσι. (43) ἢ δ' ὁμαλότης καὶ λειότης, ὅταν ἦ,  
ποιεῖ τινὰ χάριν κατὰ τὴν κίνησιν καὶ φοράν, ὥσθ' ὅπου τοιοῦτος ἐνταῦθα καὶ ἡδύς.  
εἰ μὴ ἄρα καὶ παραλλαττόντως ἐμποιοῦνται τὴν προσηγορίαν τὸν Κῖον ζέφυρον  
καλοῦντες, χειμέριος γὰρ οὗτος. ἀλλὰ ταῦτα μὲν ἐπισκεπτέον. ὅτι δὲ τοὺς καρπούς 305  
οὓς μὲν φθείρει οὓς δὲ τρέφει, καθόλου μὲν ἐκείνο ἀληθὲς εἰπεῖν, ὃ καὶ κατὰ τῶν  
ἄλλων κοινόν· ὅτι τρέφει μὲν ὅπου [μὲν] ψυχρὸς πνεῖ τοῦ θέρους, ἀπόλλυσι δὲ ὅπου  
θερμός. καὶ πάλιν τοῦ χειμῶνος καὶ τοῦ ἡρος ὁμοίως· ὅπου μὲν ψυχρὸς ἀπόλλυσι,  
ὅπου δὲ θερμὸς τρέφει καὶ σώζει, ἐναντίως ταῖς ὥραις τὴν πνοὴν ἔχων. τοῦτο

289 ἐφ' A : ἀφ' Schn.<sup>2</sup> || [ἐφ'] ὁμαλὸς Bon. ex Pr. 26.52 : ἐφ' ὁμαλῆς A : ἐφ' ὁμαλῇ Schn.<sup>5</sup> || τοῦτο  
A : ταῦτό Gigon : post τοῦτο add. καὶ λειὸς Schn.<sup>2</sup> || οὐ γὰρ (lac. 5 litt.) A, sine lac. V<sup>a</sup> 289–290  
βορίαν καὶ ... τις ἐστί A, secl. Cout. (βορέαν B<sup>pc</sup>) 290–291 (ἀπ' ὁρέων πνεῖ οὐδὲ βίᾱ τηκομένου  
ἀλλὰ ῥαδίως) Bon. ex Pr. 26.52 291 ὥσπερ V<sup>a</sup> : (lac. 2 litt.) περ A : (lac.) ὥσπερ S 291–292 τὰ μὲν  
γὰρ πρὸς βορέαν καὶ νότον (ὀρεινά)· πρὸς ἐσπέραν δ' οὔτε ὄρος οὔτε γῆ ἐστίν Wim. (ex Pr. 26.52, cf.  
Bon.) : τὴν μὲν γὰρ πρὸς βορέαν καὶ νότον πρὸς ἐσπέραν δ' οὐκ ἕτερος οὐδὲ τις ἐστίν A 293 ὥστε  
Turn. (cf. Pr. 26.52) : ὥς A || (δὲ) δείλης Gigon, cf. δείλης (δ') Turn. 294 μετὰ A : (τὰ πνεῦ)ματα  
Gigon ex Pr. 26.35a 296 ἐλλείπειν A : ἐκλείπειν Gigon ex Pr. 26.52 || ὅτ' A : ὅτε R : ὅτε Schn.<sup>1</sup> 297  
πελάγους B : πλάγους A || θάλατταν Turn. : ἔλαττον A : τὸ ἔλαττον V<sup>a</sup> : ἔλλαττον S || [προ]πολλοῦ  
Turn. : προπολλοῦ A : προπολοῦ z 298 διόπερ A : διὰ Wim. || πρότερα A : πρότερον V<sup>a</sup> || δὲ A :  
om. r : γὰρ Wim. || τὸν A : om. Wim. || πνεῖ Schn.<sup>1</sup> : πνεῖν A 299 ἀέρος ῥέοντος D<sup>pc</sup> : ἀέ\*\*\*\*\*τος  
A : ἀέρος πνέοντος D<sup>ac</sup> : ἀέρος ὄντος Turn. || ἔπειθ' A : ἐπεὶ Turn. : ἐπεὶ δ' Gigon || μεγέθει D† ||  
λαμβάνονται Wildberg : λαμβάνοντες A : λαμβάνομεν Schn.<sup>1</sup> 300 ἐν Turn. : εἰ A 301 οὕτω Turn.  
: ὃ ὥς A || ὥς οὐ A : οὐκ ὥς Schn.<sup>1</sup> 303–304 εἰ μὴ ἄρα—ἐπισκεπτέον (43.000–000) transp. post  
πάσι Schn.<sup>1</sup> 303 εἰ A : εἰς D || παραλλαττόντως Wildberg : παραλάττον ἐστίν A : παραλλάττοντες  
τινες Schn.<sup>1</sup> || ἐμποιοῦνται A : ἐνποιοῦνται D : ἐκποιοῦνται H : καὶ ποιοῦνται Schn.<sup>1</sup> (om. καὶ Wim.) ||  
Κῖον scripsi : κίον A : (Θρασ)κίαν Turn. 304 om. μὲν S 306 μὲν ὅπου S : μὲν ὅπου μὲν A 307 ἡρος  
D, ἡρως A 308 ἐναντίως A : ἐναντίαν Turn. || ὥραις D : ὥρ' A || ἔχων Turn. : ἔχειν A

289–296 καὶ [ἐφ'] ὁμαλὸς ... τοῦ ἡλίου κίνησιν] Pr. 26.52.946a26–32 296–297 ἄγει δὲ καὶ ...  
[προ]πολλοῦ συνάγειν] Pr. 26.24.942b20–21

because it has gone over water. (41) And because of this it is regular. For it does not (blow from mountains nor from what is melted, by force, but easily) it flows as if through a pipe. Indeed, the regions toward Boreas and Notos are (mountainous); but toward the west there is neither mountain nor land, but the Atlantic Ocean, so that it travels in the direction of the land. (And) the blowing is in the afternoon, because of the location. For all (winds) come with the sun dispersing or vaporizing the moisture or assisting at the beginning. So when (the sun) reaches this location, so too does the blowing. And it stops during the night because the motive-power of the sun fails. (42) But it also brings the greatest clouds, because it blows out from the ocean and over the sea, so that it brings (them) together from a large (area). And it is stormy and ill-blowing, which justifies the things stated earlier. After the winter it blows when the air is still flowing cold. Now the autumnal (Zephyrus) is not of this sort, unless it develops into a storm due to its power. For it blows powerful in connected locations, just as the others do as well. And perhaps we should take 'stormy' in this way, as not (ill-blowing) in every case. (43) Its regularity and smoothness, when it occurs, produce a certain delight in its motion and direction, so that wherever it is such, there too it is pleasant. That is, unless perhaps they introduce a different name, calling the Cean wind 'Zephyrus', for this is stormy. But these issues must be investigated. Now as to the fact that it ruins some crops, but nourishes others, it is in general true to say (of the Zephyrus) what is also common in the case of the other (winds), (namely) that it nourishes where it blows cold in summer, but destroys where (it blows) hot. And again in winter, and similarly in spring: where (it blows) cold it destroys, but where (it blows) hot it nourishes and preserves, its blowing being opposite to the seasons.

δ' ἐστὶν ὅταν ἐκ θαλάττης ἦ· θερμὴ γὰρ αὕτη χειμῶνος, θέρους δὲ ψυχρά. διὰ τοῦτο  
 δὲ καὶ ὁ νότος ἐνιαχοῦ τοιοῦτος, ὥσπερ καὶ ἐν Ἑργεί, καὶ ὁ βορέας δὲ παρ' ἄλλοις. 310  
 (44) τὸ μὲν οὖν ἀπλοῦν καὶ κοινὸν ὥσπερ ἐλέγχθη τοῦτο. τὰ δὲ καθ' ἐκάστους τόπους  
 ἐκ τῆς θέσεως δεῖ καὶ τῶν ἄλλων τῶν συμβαινόντων ἀνασκοπεῖν καὶ θεωρεῖν·  
 εὐρήσεις γὰρ σχεδὸν ἐν ταύταις ταῖς αἰτίαις τὴν διαφοράν. οἷον τῆς Ἰταλίας·  
 ἢ μὲν (Λο)κρίς καὶ ἡ ταύτη συνεχῆς εὐθένει τῷ ζεφύρῳ, διὰ τὸ ἐκ θαλάττης  
 προσπίπτειν· ἄλλη δὲ τις οὐχ ὁμοίως, ἔνιαι δὲ καὶ βλάπτονται. καὶ πάλιν τῆς 315  
 Κρήτης· ἢ μὲν Γόρτυνα τρέφεται, κεῖται γὰρ ἀναπεπταμένη, καὶ προσβάλλει αὐτῇ  
 ἐκ τοῦ πελάγους· ἑτέρα δὲ τις (ἀ)πόλλυτα(ι) πρὸς ἣν ἐκ τῆς γῆς καὶ ὀρών τινῶν  
 προσπίπτει. (45) φθείρει δὲ καὶ τὰ ἐν τῷ Μα(λιακῷ) κόλπῳ πάντα καὶ τὰ ἐπέτεια  
 καὶ τὰ τῶν δένδρων, (καὶ) τὰ τῆς Θετταλίας περὶ τὸν Πιέριον. ἀμφοτέρων δὲ τῶν 320  
 τόπων ἡ αὐτὴ φύσις καὶ τὰ περιέχονθ' ὅμοια· κεῖνται μὲν γὰρ ἄμφω πρὸς ἀνατολήν,  
 περιέχονται δ' ὅρεσιν ὑψηλοῖς, ὁ μὲν τῇ Οἴτῃ καὶ τοῖς συνεχέσι (...) † ὁ δὲ πνέων  
 ζέφυρος ἀπὸ δυσμῆς ἰσημερινῆς τὴν ὑπὸ τοῦ ἡλίου θερμότητα προσπίπτουσιν τοῖς  
 ὅρεσιν καὶ ἀνακλωμένην καὶ τὴν (lac. 5 litt.) εὐθὺς εἰς πεδίον καὶ ἀπέκαυσεν. †  
 ὁμοίως δὲ καὶ παρὰ τοῖς ἄλλοις οἷς ἢ τι τοιοῦτον ἢ παραπλήσιον τούτῳ συμβαίνον  
 ἐστὶ, καὶ τοῖς ἐναντίοις ἀνάπαλιν. 325

(46) ὅλως γὰρ ὁ πολλάκις λέγεται, τοῦτ' ἄληθές· ὅτι μέγα συμβάλλεται δι' αὐτὸν  
 ἂν πνέῃ καὶ ὅθεν εἴς τε τὰλλα καὶ εἰς θερμότητα καὶ εἰς ψυχρότητα. διὰ τοῦτο γὰρ  
 καὶ ὁ νότος ψυχρὸς οὐχ ἦττον τοῦ βορέου κατὰ τὴν παροιμίαν, ὅτι (διὰ τὸν) ἀέρα  
 κατεψυγμένον ἔτι καὶ ὑγρὸν ὑπὸ τοῦ χειμῶνος τοιαύτην ἀνάγκη[ν] τὴν [ἀνα]πνοὴν  
 προσπίπτειν, οἷος ἂν ὁ ἀήρ ᾖ. καὶ (ὁ) βορέας ὁ ἐπὶ τῶν πηλῶν τῶν νότων, ὃν φησι 330  
 πάλιν ἡ παροιμία χειμῶνα ποιεῖν, διὰ τὴν αὐτὴν αἰτίαν ποιεῖ· βρεχθεὶς γὰρ ὁ ἀήρ  
 ψυχρός. ὥσαύτως δὲ καὶ (αἱ) ἀπὸ τῶν ποταμῶν αὖραι ὥσπερ ἐλέγχθη πρότερον.

309 ἦ B<sup>pc</sup> : ἡ A 311 τόπους B<sup>ms</sup> : τύπους A 312 ἀνασκοπεῖν Turn. : ἀνακοπεῖν A 314 λοκρίς Turn.  
 : κρις A : κρίς D : κρηίς R || ταύτη Turn. : ταῦτα A || εὐθενεῖ Gigon, cf. εὐθηνεῖ Turn. : ἐνθένει A :  
 ἐνθέρει V<sup>a</sup> || ἐκ B<sup>pc</sup> : ἐν A : ἐκ (τῆς) Wim. 315 βλάπτονται Turn. : βλάπτοντες A 316 κρήτης V<sup>a</sup> :  
 κρις A || Γόρτυνα Gigon (cf. γορτύνα Ald.) : κορτύνα A : Γορτύνη Schn.<sup>1</sup> || αὐτῇ Turn. : τὴν A 317  
 ἀπόλλυται Turn. : πόλλυτα A || ἦν D † 318 μαλιακῷ Turn. : μὴ A : μαλακῷ Wim. || ἐπέτεια Turn. :  
 ἐφέτεια A 319 (καὶ) τὰ Furl. : τὰ A : καὶ pro τὰ Turn. || Θετταλίας A : Θεσσαλίας Wim. || τὸν B : τὸ  
 D † || πιέριον Gryn. : κίριον A 320 φύσις D † || περιέχονθ' A : περιέχοντα B 321 lac. indicavi : (ὁ δὲ  
 τῷ Πιέριῳ) Schn.<sup>1</sup> 321–323 ὁ δὲ πνέων—ἀπέκαυσεν ms. A (obelis inclusi) 323 καὶ om. Schn.<sup>1</sup> ||  
 καὶ τὴν (lac. 5 litt.) A, sine lac. V<sup>a</sup> : ἐξέτραπεν Wim. : κατήν(εγκεν) Gigon 324 οἷς Ald. : αἷς A || ἢ  
 τι Wildberg : εἴ τι A : εἴ τε R : [εἴ] τι Turn. || τοῦτῳ Turn. : τοῦτο A 327 ἂν πνέῃ Anon. : ἀναπνέῃ  
 A || τὰλλα D : τὰλα A 328 (διὰ τὸν) Turn. : lac. 5 litt. A : (κινεῖν) Gigon 329 ἀνάγκη Ald. : ἀνάγκην  
 A || [ἀνα]πνοὴν Turn. 330 ἦν A : ἦ Anon. || καὶ A, add. Gigon : ὁ δὲ pro καὶ Schn.<sup>1</sup> || τῶν πηλῶν  
 A : τὸν πηλὸν D || νότων Anon. : ὄνων A 332 αἱ V<sup>a</sup> : om. cett. codd. || ἐλέγχθη D : ἐλέγχῃ A



And this is (the case) when (wind) is from the sea; for it (sc. the sea) is hot in winter, but cold in summer. And for this reason Notos too is like that in some places, as indeed it is in Argos, and Boreas as well in other places. (44) So, the straightforward and common (characteristics) concerning this (wind) are as have been described. But the (characteristics of it) with respect to particular locations must be examined and considered from its position and the other circumstances (of that location); for you will discover the difference by and large in these causes. For instance in Italy: Locris and the (area) adjoining this thrive owing to Zephyrus, because it falls upon (them) from a sea; but it is not the same for some other (area), and some are even harmed. And again in Crete: Gortyn flourishes, for it lies in the open and (Zephyrus) falls upon it from the open sea, whereas a different (area) upon which (Zephyrus) falls from the land and certain mountains is destroyed. (45) And it also ruins everything in the Malian Gulf, both the annuals and the (fruit) of the trees, (as well as) what is around the Pierian area of Thessaly. The nature is the same for both locations and the surroundings are similar; for both lie toward the East but are surrounded by high mountains, the one by Mt. Oeta and the connected (hills) (...). †Now Zephyrus blowing from the equinoctial sundown (sends) the heat (generated) by the sun striking the mountains and being deflected upward and the ... straight into a plain and causes a frost.† And (it acts) similarly in other (places), in which some such or the like is happening to it, and conversely in the opposite (kinds of places).

(46) For this, what is often said, is true generally: that it makes a big difference to other matters, and especially to heat and to cold, through what (region) and from where (a wind) blows. Indeed, for this reason too Notos is cold no less than Boreas, according to the proverb, because, (with the) air still cooled by the storm and so moist, the blast must strike in just such a condition as the air would be. And Boreas (blowing) on the mud from Notos winds, which again the proverb says produces stormy weather, produces it through the same cause: for drenched air is cold. And similar too are the breezes from rivers, as was said before.

(47) ἡ μὲν τούτων ἰδιότης ἔχει τιν' εὐλογον. ὅτι δὲ τὰ πνεύματα τοῦ μὲν χειμῶνος  
καὶ τὸ ἐωθινὸν ἀπὸ τῆς ἕως πνεῖ, τοῦ δὲ θέρους καὶ τῆς δειλῆς ἀπὸ τῆς ἐσπέρας,  
ἐκείνην τὴν αἰτίαν ὑποληπτέον· ὅταν ὁ ἥλιος ἔλκων μηκέτι κρατῇ, τοτ' ἀφιέμενος ὁ 335  
ἄῃ ρεῖ. δυόμενος οὖν καταλείπει (νέφη) ἀφ' ὧν τὰ ζεφύρια. καὶ ὅσον ἂν ἄγῃ τοῖς ἐν  
τῷ (κάτω) ἡμισφαιρίῳ [κατ'] οἴκουσιν (ἐωθινὸν) πνεῦμα γίνεται· τάναντία δ' ὅταν  
δύηται ἐν τῷ κάτω μέρει ζεφύρους μὲν ἐκείνοις ποιήσῃ, το(ῖς) δ' ἐνταῦθεν ἐωθινὸν  
πνεῦμα ἀπὸ τοῦ συνεπομένου ἀέρος αὐτῷ τούτῳ. (48) καὶ ἐὰν λάβῃ πνεόντα ἄλλον 340  
ἄνεμον αἰρομένου μείζω(ν) γίνεται διότι προσέθηκεν. ὥσπερ (δ') ὁ ζέφυρος αἰεῖ  
καὶ πόρρω πνεῖ τοῖς ἐσπερίοις, οὕτω τοῖς κάτω πρὸς τὴν ἡμετέραν ἕω, ἐκείνων δ'  
ἐσπέραν, ἄλλα πνεύματα. ταῦτα μὲν οὖν παρὰ τὴν ὁμοιότητα παρ' ἑκατέροις, ἢ  
τε τοῖς ἄκροις ἐκάστων πνοῇ γίνεται μὲν ὥσπερ καὶ τὰ ὕδατα καὶ τὰ ἄλλα κατὰ  
συμβεβηκός, οὐ μὴν κατ' ἀκρίβειαν, ἀλλ' ὥς ἐπὶ τὸ πᾶν.

εἶωθε δ' ὥσπερ ἄλλο τι τῶν τεταγμένων καὶ ἐπὶ κυνὶ ὁ νότος πνεῖν. αἴτιον δ' ὅτι 345  
θερμὰ τὰ κάτω τοῦ ἡλίου παρόντος, ὥστε γίνεται πολλὴ ἀτμός. ἔπνεον δ' ἂν πολλοὶ  
μὴ κωλυόμενοι τοῖς δ' ἐτησίαις· νῦν δ' οὗτοι διακωλύουσιν.

(49) οἱ δὲ νυκτερινοὶ βορέαι τριταῖοι πίπτουσιν, ὅθεν ἡ παροιμία λέγεται, ὡς  
«οὐποτε νυκτερινὸς βορέας τρίτον ἔκετο φέγγος», διότι ἀσθενῇ τὰ πνεύματα γίνε-  
ται τὰ ἀπὸ τῆς ἄρκτου νύκτωρ ἀρξάμενα. φανερόν γάρ ὡς (οὐ) πολὺς ὁ κινήθεις 350  
ἄῃ ὅταν τῆς θερμότητος ὀλίγης οὕσης· ὀλίγον γὰρ ὀλίγη κινεῖ.  
τελευτᾷ δὲ πάντα ἐν τρισί, καὶ τὰ ἐλάχιστα δ' ἐν τῇ πρώτῃ τριάδι. ὅτι δ' οὐκ αὐτὸ  
τοῦτο συμβαίνει καὶ ἐπὶ τοῦ νότου νυκτερινοῦ πνεύσαντος, αἴτιον ὅτι ἐγγὺς ὁ ἥλιος

333 post μὲν add. οὖν Turn. || τιν' εὐλογον A : τὸν εὐλογον H : τινὰ λόγον Turn. 334 τὸ ἐωθινὸν A : ante ἐωθινὸν add. ἀπὸ τῆς ἐσπέρας z 335 κρατῇ τότ' ἀφιέμενος Turn. : κρατεῖν ποτ' ἐφιέμενος A 336 ρεῖ δυόμενος Turn. : εἰσδυόμενος A || οὖν καταλείπει (νέφη) Schn.<sup>2</sup> : συγκαλύπτει A || ἀφ' ὧν Schn.<sup>2</sup> : ἀφ' οὗ A || ἂν ἄγῃ Schn.<sup>2</sup> : ἀνάγει A 337 ante ἡμισφαιρίῳ add. κάτω Turn. || οἴκουσιν Bon. : κατοικοῦσιν A || ἐωθινὸν Turn. : lac. 4 litt. A || τάναντία Bon. : κατέναντι A : τοῦναντίον Turn. 338 μέρει ζεφύρους Turn. : μερίζεται θέρους A || τοῖς Schn.<sup>1</sup> : τὸ A || ἐνταῦθεν Bon. : ἐντεῦθεν A 339 τούτῳ A : (διὰ) τοῦτο Bon. ex Pr. 26.21 (*incip. cap.* 48 Schn.<sup>1</sup>) || λάβῃ A : (κατα)λάβῃ Gigon 340 αἰρομένου Turn. : ὅς μὲν οὐ A : om. Wim. || μείζων Furl. : μείζω A || post προσέθηκεν add. ἐαυτῷ || (δὲ) Turn. 341 οὕτω τοῖς D† : fort. post τοῖς add. παρ' ἡμῖν Gigon 342 ἐσπέραν ἀλλὰ D†, ἄλλα pro ἄλλὰ Turn. || ὁμοιότητα D† 343 τε A : δ' Gigon || ante τοῖς add. ἐν Schn.<sup>1</sup> || γίνεται D† || ὕδατα D : ὕδα A 344 κατ' Wildberg (cf. γὰρ κατ' Furl.) : γ' A : γὰρ r || ἄλλ' ὡς Turn. : ἄλλως A 345 εἶωθε Schn.<sup>1</sup> : ἔωθεν A || τῶν τεταγμένων Turn. : τῆς τεταγμένης A : τοῖς τεταγμένοις N || τῷ κυνὶ ὁ νότος Schn.<sup>1</sup>, om. τῷ Gigon (cf. κυνὶ τὸν νότον Bon.) : κοινήν A 346 παρόντος Furl. : πόρρω ὄντος A 347 om. δ' Ald. || ἐτησίαις B<sup>ms</sup> : ἐήσιαις A 348 βορέαι Ald. : βορίοι A 349 ἔκετο Turn. : καὶ τὸ A 350 φανερόν Turn. : φανερά A || (οὐ) Turn. 351 πνέῃ D : πνέου A

333–339 ὅτι δὲ τὰ ... ἀέρος αὐτῷ τούτῳ] Pr. 26.21.942b3–10, 26.54.946a35–b20 339–340 καὶ ἐὰν λάβῃ ... διότι προσέθηκεν] Pr. 26.21.942b10–12 345–347 εἶωθε δ' ὥσπερ ... οὗτοι διακωλύουσιν] Pr. 26.12.941a37–b1, 26.32.944a4 348–352 οἱ δὲ νυκτερινοὶ ... τῇ πρώτῃ τριάδι] Pr. 26.9, 26.14, 26.60.947a28–29 352–356 ὅτι δ' οὐκ ... τὰς ὑγρότητας] Pr. 26.11

(47) The particular character of these (winds) involve something reasonable. But that the winds blow from the east in winter and in the morning, and from the west in summer and in the afternoon, one must suppose this cause: when the sun drawing (the air) no longer masters it, then the air is released and flows. So when (the sun) sinks it leaves behind ⟨clouds⟩, from which come Zephyrus winds. And however much (air the sun) carries to those living in the ⟨lower⟩ hemisphere, becomes a ⟨morning⟩ breeze; and conversely, when it sinks in the lower part it produces Zephyrus winds for those people, whereas for those here it produces a morning breeze (that originates) from the air that accompanies just this (kind of wind). (48) And if (Zephyrus) picks up another (local) wind blowing as (the sun) rises, it becomes greater, because (something) has been added (to it). ⟨And⟩ just as Zephyrus is indeed always blowing far for those in the west, so for those in the lower (hemisphere) other winds (blow) toward our dawn, their sunset. Thus, these (winds blow) according to the similar condition in each (hemisphere), and the blowing occurs at the extreme times of each, just as do the rains and the other (phenomena which happen) according to circumstance—not precisely, but on the whole.

Now Notos, just like any other of the orderly (occurrences), is accustomed to blow also at the time of the Dog-star. And the explanation is that the lower (areas) are hot, because the sun is nearby, so that a lot of vapor is generated. And many (Notos winds) would blow, if not hindered by the Etesians; but as it is these do hinder (them).

(49) Nighttime Boreas winds fall away after three days, for which reason the proverb is spoken, that “never does a nighttime Boreas reach third light,” because winds from the arctic beginning at night are weak. For it is clear that the (amount of) air moved is ⟨not⟩ great when it blows at a time when there is little heat; for little (heat) moves little (air). And they all end in three (days), and the slightest in the first (part of the) triad. Now, that this same thing does not also happen in the case of the blowing of the nighttime Notos, the cause

ἐστὶ τῆς πρὸς νότον χώρας καὶ ἀλειυνότεραι αἱ νύκτες ἐκεῖ (ἦ) πρὸς ἄρκτον αἱ  
 ἡμέραι, (ὥστε πολὺς) ὁ κινούμενος ἀῆρ καὶ οὐδὲν ἔλαττον ἢ μεθ' ἡμέραν. ἀλλ' ὅσῳ 355  
 θερμότεραι αἱ ἡμέραι, κωλύουσι (μᾶλλον) πνεῖν [αἱ] ξηραίνουσαι τὰς ὑγρότητας.  
 (50) τάχα δὲ κάκεινου τοῦ βορέου (*lac. 6 litt.*) ὅτι ἀθρόως ἢ ἔκχυσις, ὥσπερ τῶν  
 ἐκνεφίων (*lac. 6 litt.*) ταχεία δ' ἢ παῦλα τῶν ἀθρόων· «ἀσθενοῦς (γὰρ) ἀρχῆς  
 (οὐδὲν) [τὸ] μέγεθος».

ἀεὶ δ' ὡς ἐπίπαν λαῦρος (ὁ νότος) μετὰ δὲ χιόνα καὶ πάχνην, ὅθεν καὶ ἡ παροιμία· 360  
 «φιλεῖ δὲ νότος μετὰ πάχνην», ὅτι πέψεώς τινος γενομένης καὶ ἀποκαθάρσεως  
 ἐκάτερόν τι πίπτει. μετὰ δὲ τὴν πέψιν καὶ τὴν ἀποκάθαρσιν, εἰς τοῦναντίον ἢ  
 μεταβολή· βορέα δ' ἐναντίος ὁ νότος. δι' αὐτὸ τοῦτο ὅτι μετὰ τὸν ὑετὸν καὶ τὴν  
 χάλαζαν καὶ τὰς τοιαύτας τινὰς τ' ὡς ἐπὶ τὸ πολὺ πίπτει τὰ πνεύματα. πάντα γὰρ  
 ταῦτα καὶ τὰ τοιαῦτα πέψεις καὶ ἀποκαθάρσεις τινὲς εἰσιν. 365

(51) ἐπεὶ δὲ πρὸς τὰς χώρας ἐκάστοις καὶ τοὺς τόπους ἐπινεφεῖ καὶ αἶθρια, 370  
 διὰ τοῦτο καὶ τῶν ἐν παροιμίᾳ λεγομένων πρὸς τινὰς τόπους εἰσὶν, ὥσπερ τοῦ  
 ἀργέστου καὶ λίβος, ἢ χρώνται μάλιστα περὶ Κνίδον καὶ Ῥόδον· «λίψ ἀνεμος ταχὺ  
 μὲν νεφέλας ταχὺ δ' αἶθρια ποιεῖ, ἀργέστη δ' ἀνέμῳ πᾶσ' ἔπεται νεφέλη». περὶ γὰρ  
 τοὺς τόπους τούτους ὅ τε λίψ ἀμφοτέρα ταχέως ποιεῖ, πνέων ἀπὸ τοιαύτης ἀρχῆς, 370  
 ὅ τ' ἀργέστης ταχὺ δασύνει τὸν οὐρανόν.

(52) ἐνιαχοῦ δὲ καθάπερ τάξις τίς ἐστὶ τῶν πνευμάτων, ὥστε θάτερον μετὰ  
 θάτερον πνεῖν ἐὰν μὲν τινα χρόνον. τάχα δ' οὐδὲ τὸ ὅλον ἄτοπον τό γε τοιοῦτο,  
 εἴπερ ἢ περίστασις αἰεὶ τῶν ἀνέμων εἰς τοὺς ἐφεξῆς (ἦ) πάλιν μεταβολὴν εἰς τοὺς  
 ἐναντίους. δύο γὰρ οὗτοι τρόποι μεταλλαγῆς, ἢ περιισταμένων ἢ ἐκπνευσάντων 375  
 τελέως. ὦν ἢ μὲν κατὰ τὴν περίστασιν ἐστὶν εἰς τοὺς ἐφεξῆς, ἐγγυτάτω γὰρ αὕτη

354 (ἦ) Turn. || αἱ<sup>2</sup> Furl. ex Pr. 26.11 : δὲ A 355 (ὥστε πολὺς) Bon. ex Pr. 26.11 : (καὶ πολὺς) Schn.<sup>1</sup> ||  
 om. καὶ Wim. || ἔλαττον A : ἐλάττων Gigon 356 (μᾶλλον) Bon. ex Pr. 26.11, (αἴτιον) Furl. || om.  
 αἱ B 357 κάκεινου A : κάκεινο Schn.<sup>1</sup> || ἀθρόως A : ἀθρόος Gigon || ἔκχυσις Turn. cf. Pr. 26.14 :  
 ἔγχυσις A 358 om. lac. Turn. 358–359 ἀσθενοῦς (γὰρ) ἀρχῆς (οὐδὲν) [τὸ] μέγεθος» scripsi (cf.  
 ἀπ' ἀσθενοῦς γὰρ ἀρχῆς οὐδὲν μέγεθος Wim.) : ἀσθενοῦς ἀρχῆς τὸ μέγεθος A 360 λαῦρος A : λάβρος  
 Turn. || (ὁ νότος) Furl., cf. (νότος) Bon. || post πάχνην add. πνεῖ νότος Turn., νότος Wim. 361 ante  
 ὅτι add. αἴτιον δ' Gigon || γενομένης A : γινομένης S 362 post τοῦναντίον add. τῶν ἀνέμων Gigon  
 363 βορέα B : βορέας A || δι' Bon. ex Pr. 26.3 : τὸ D† || τοῦτο A : τούτῳ Wim. 364 καὶ τὰς D† || τινὰς  
 A, obelis inclusi : χειμασίας Wim. (cf. Pr. 26.3) || πολὺ Turn. : παχὺ A || πίπτει A : (μετα)πίπτει  
 Gigon || πνεύματα D† 365 καὶ D† 366 αἶθρια scripsi : ἰθρία A : αἰθρία D 367 καὶ A : ante καὶ  
 add. τὰ Furl. || εἰσὶν A : ἐνία Wim. || post ὥσπερ add. τὰ Gigon 368 ἀργέστου B<sup>ms</sup> : ἀργεστάτου  
 A || λίβος B<sup>ms</sup> : λίβας A || ἢ χρώνται Turn. (οἷς pro ἢ Gigon) : αἰσχροὺς A || κνίδον Ald. : κίνδον A  
 369 μὲν Turn. : δὲ A || νεφέλας Ald. : νεφέλην A : νεφέλη N || αἶθρια z : αἰθρία A : αἰθρίας Ald. 374  
 ἀνέμων D : ἀνύμων A || (ἦ) Turn. || μεταβολὴν A : μεταβάλλειν Furl. 375 ἐναντίους A : ἐναντίους  
 ποιεῖ V<sup>a</sup> || ἢ περιισταμένων Turn. : εἴπερ ἰσταμένων A 376 ἐστὶ Bon. : εὖρος A : ante εὖρος lac.  
 indic. Wim.

360–365 αἰεὶ δ' ὡς ... τινὲς εἰσιν] Pr. 26.3

is the fact that the sun is close to the region that is toward Notos (i.e. to the south) and the nights are warmer there (than) the days are toward the arctic, (so that much) air is being moved (at night) and no less than by day. But to the extent that the days are hotter, (the more) they prevent (Notos) blowing by drying the moisture. (50) And perhaps ... of this (feature) of Boreas is that its out-pouring is concentrated, like that of cloud-winds .... But the cessation of concentrations is quick: “(for nothing) powerful from a weak source.”

⟨Notos⟩ is almost always violent after snow and frost, whence in fact comes the proverb: “Notos likes (to blow) after frost,” because when a concoction and purification occurs, something else falls. And after the concoction and the purification, the change is into the opposite: and Notos is opposite Boreas. It is for this same reason that after rain and hail and such things in most cases the air-flows fall. For all of these and such things are certain concoctions and purifications.

(51) Since ‘cloudy’ and ‘clear’ are connected in each case to regions and locations, for this reason, too, they pertain to what is said in proverb with regard to particular places, just as (is said) of Argestes and Lips, which (proverb) is used especially around Cnidus and Rhodes: “Lips wind quickly makes clouds and quickly clear skies, while every cloud follows Argestes wind.” For around these locations Lips quickly makes both, blowing from such a source, and Argestes quickly darkens the sky.

(52) In some places there is something like an order of the winds, so that one blows after the other, if (the prior wind) endures for a certain time. And perhaps such (a phenomenon) is not all that strange, if the circuit of the winds is always towards the next ones in succession (or) there is a change back to the opposite ones. For there are these two manners of alteration: moving in a circle or blowing out completely. Of these, the (alteration) according to the circuit is to the next ones in succession, for this shift is

μετάβασις, ἐν ἣ καὶ [αντ]ἀναστρέφει πολλάκις ἐπὶ τὸν αὐτὸν ὅταν ὑπὸ χειμῶνος ἀοριστία τις ᾗ· ἡ δὲ κατὰ τὴν μεταβολὴν εἰς τοὺς ἐναντίους. (53) καὶ ὅλως οὕτω πέφυκεν ἐπὶ πάντων καὶ ἐπὶ τούτων ἡ ἀνταπόδοσις καὶ οἷον ἡ ἀντίρροια κατὰ λόγον, ὅπερ καὶ ταῖς ἀπογείαις ὑπάρχειν πρὸς τὰς τροπαίας. 380

αὕτη δὲ πολλαχοῦ καθάπερ ἐφήμερός ἐστι τάξις τῆς μεταβολῆς. ἐνιαχοῦ δ' οὐ τροπαία τὸ ἀντιπνεόν ἄλλ' ἑτερόν τι πνεῦμα πελάγιον, ὥσπερ καὶ περὶ (τὸν) Παμφυλικὸν κόλπον. ἔωθεν μὲν γὰρ (ὁ ἴ)δυρις καλούμενος ἀπὸ τοῦ ποταμοῦ τοῦ Ἰδύρου πνεῖ μέγας καὶ πολὺς, ἐπιπνέει δὲ αὐτῷ νότος καὶ εὖρος. ὅταν δ' ἀντικόψωσιν ἀλλήλοις, κύματός τε μέγεθος αἴρεται, συνωθουμένης τῆς θαλάττης, καὶ πρηστήρες πολλοὶ πίπτουσιν, ὅφ' ὧν καὶ τὰ πλοῖα ἀπόλλυνται. (54) τὸ γὰρ ὅλον ὅπου τοιαύτη σύγκρουσις γίνεται τῶν ἀνέμων, καὶ κυμάτων μέγεθος αἴρεται καὶ χειμῶν γίνεται πολὺς, ὥσπερ ὅταν ἀντιπνεόντων ἀλλήλοις μάχεσθαι φῶσι τοὺς ἀνέμους. ἐπεὶ κάκεινο κατὰ λόγον ἐστίν, ὅταν ἐπιπέσωσιν ἀλλήλοις μήπω τελέως ἐκπεπνευκόσι τὸν χειμῶνα ποιεῖν οἷον γὰρ ὕλην παρέθηκε θάτερος θατέρω. μᾶλλον δὲ τοῦτ' ἐμφανὲς ἐπὶ τοῦ βορέου· χειμεριώτερος γὰρ οὗτος καὶ εὐθὺ τὴν προσενεχθεῖσαν (ἐ)πηξεν. ὡσαύτως δὲ καὶ ὁ νότος ἐξύγρανεν καὶ ὑδατώδη ἐποίησεν. ἐνιαχοῦ δὲ καὶ τοὺς νιφετοὺς δοκεῖ ποιεῖν, ὥσπερ καὶ περὶ τὸν Πόντον καὶ τὸν Ἑλλήσποντον, ὅταν ὁ βορέας οὕτω γένηται ψυχρὸς ὥστε πῆξας κατέχειν· οὐ μὴν ἀλλὰ γε τὸ πλεῖον διέπηξεν ἢ εἰς ὕδωρ διέλυσεν. (55) καὶ αὗται μὲν οἷον χειμεριναὶ τινες ἐπίπνοιαί καὶ ἀντικόψεις. 385 390 395

(αἱ) δ' ἐπ' Ὠριῶνος ἀνατολῇ καὶ δύσει τῶν πνευμάτων ἀκρισίαι συμβαίνουσιν ὅτι ἐν ταῖς μεταβολαῖς αἰεὶ πάντα μάλιστα πέφυκεν ἀοριστεῖν. ὁ δ' Ὠριῶν ἀνατέλλει μὲν ἐν ἀρχῇ ὀπώρας, δύνει δ' ἐν ἀρχῇ χειμῶνος, ὥστε διὰ τὸ μήπω καθεστάναι μηδὲ μίαν ὥραν, τῆς μὲν γινομένης τῆς δὲ παυομένης, ἀνάγκη καὶ τὰ πνεύματα ἀκατάστατα καὶ ἄκριτα εἶναι, διὰ τὸ (ἐπαμφοτε)ρίζειν (τὰ ἐξ ἐκατέρας), ὅθεν δὴ 400

377 ἀναστρέφει Ald. : ἀνταναστρέφει A || τὸν αὐτὸν Turn. : τῶν αὐτῶν A 378 ἀοριστία τις ᾗ Turn. : ὁ ἀρκτιάτης ᾗν A : ὁ ἀρκτιά τις ᾗν B 379 πέφυκεν Bon. : πέφηνεν A 380 ὅπερ καὶ A : ὁ περὶ Wim. : ὥσπερ καὶ Gigon || ταῖς ἀπογείαις Gigon : τὰς ἀπογαίας A : τὰς ἀπογείας Wim. || ὑπάρχειν A : ὑπάρχει Schn.<sup>1</sup> 382 (τὸν) Ald. 383 ὁ ἴδυρις Turn. : δύρις A 385 μέγεθος V<sup>a</sup> : μεγέθους A 386 ὅφ' ὧν καὶ τὰ D† 387 σύγκρουσις D† || αἴρεται D† 389–390 ἐκπεπνευκόσι Turn. : ἐκπεπνευκόσι A : ἐκπεπτωκόσι N 390 παρέθηκε A : προσέθηκε Gigon || μᾶλλον δὲ Turn. : δὲ μᾶλλον A 391 γὰρ B : τ<sup>\*\*</sup> A D<sup>sl</sup> : τις M 392 ἔπηξεν Turn. : πῆξιν A : ἔπηξεν (ὕλην) Furl. 396 ἀντικόψεις Turn. : ἀντικώψεις A 397 αἱ δὲ Turn. : ἡδὴ A : δ' Alex. in Mete. 2.5 || ἐπ' Ὠριῶνος V<sup>a</sup> : ἐπωριῶνος A || ἀκρισίαι Alex. in Mete. 2.5 : ἀκρασίαι A 398 ὅτι ἐν ταῖς Alex. in Mete. 2.5 : οὐτ' ἐνίαις A : οὐτ' ἐνι B : ὅτι ἐν Turn. (cf. Pr. 26.13) || om. μάλιστα z, Alex. in Mete. 2.5 || ἀνατέλλει D : ἀνατέλλει A 400 μηδὲ μίαν A : μὴ δὲ μίαν D : μηδεμίαν Wim. || γινομένης A : γιγνομένης Schn. 401–402 τὸ ἐπαμφοτερίζειν τὰ ἐξ ἐκατέρας ὅθεν δὴ καὶ χαλεπὸς λέγεται Alex. in Mete. (om. τὰ Wim., secl. Gigon) : ταρίζειν (lac. 5 litt.) οἶακα αὐτόθι δὴ χαλεπὸν γίνεται A

384–386 ὅταν δ' ἀντικόψωσιν ... πλοῖα ἀπόλλυνται] Thphr. Metars. 13.43–54 397–403 (αἱ) δ' ἐπ' Ὠριῶνος ... ἀνωμαλῇ εἶναι] Pr. 26.13, Alex. Aph. in Mete. (CAG 3.2 p. 97.10–17)

the closest—in which indeed there is often a turning back to the same (direction) when there is a certain indeterminateness owing to a storm—whereas the (alteration) according to change is into the opposite (winds). (53) And in general, the repayment, that is so to speak the proportional counter-flow, occurs naturally in this way in all these cases—the very thing which also pertains (by nature) to the offshore winds in relation to the alternating winds.

In many places this order of change is pretty much daily. But in some places the blowing back is not an alternating wind but a different sea wind, as indeed (occurs) around the Pamphylian Gulf. For at dawn ⟨the⟩ so-called Idyris blows from the Idyris river with much force, and Notos and Eurys blow against it. And when they beat against each other, great waves arise, as the sea is pushed together, and many *presters* (i.e. waterspouts with lightning) strike, by which even ships are destroyed. (54) For on the whole, wherever such a collision of the winds occurs, great waves arise and many storms occur, just as when, blowing against each other, (people) say the winds are fighting. It is indeed logical, then, that when they encounter each other before blowing themselves out completely, they should produce a storm: for the one (wind), as it were, provides material to the other. This is more obvious in the case of Boreas: for this is stormier and straightaway freezes the (material) that was added. Similarly too Notos saturates and produces watery (material). And in some places it also seems to produce snowstorms, just as it does around the Pontus and the Hellespont, when Boreas becomes so cold that it continues freezing (the watery material)—at least it freezes more than it dissolves into water. (55) In fact these are so to speak the winter wind successions and collisions.

But ⟨the⟩ confusions of winds at the rising and setting of Orion result because during changes everything is always by nature especially indeterminate. Orion rises at the beginning of late-summer, and sets at the beginning of winter, so that since no single season has constituted itself, such that one comes to be and the other ends, the winds too must necessarily be unsettled and confused, through ⟨sharing the properties of each (season)⟩, for

(καί) χαλεπὸς λέγεται καὶ δύνων καὶ ἀνατέλλων εἶναι, διὰ τὴν ἀοριστίαν τῆς ὥρας. ἀνάγκη γὰρ παραχῶδη καὶ ἀνωμαλὴ εἶναι.

(56) [ἦ] ταῦτα μὲν οὖν καὶ ὅσα ἄλλα τοιαῦτα περὶ τὸν ἀέρα καὶ τὸν ὄλον οὐρανὸν συμβαίνει, τὰδε (δέ τινα) εἰς τὰς ἡμετέρας διαθέσεις. οἷον (βαρὺ)τερον 405 ἐν τοῖς νοτίοις ἔχουσιν (οἱ) ἄνθρωποι καὶ ἀδυνατώτερον· αἴτιον δ' ὅτι ἐξ (ὀλίγου) πολὺ ὑγρὸν γίνεται καὶ [ἦ] ὑγρότης βαρεῖα ἀντὶ κούφου πνεύματος. ἔτι δ' ἡ μὲν ἰσχὺς καὶ δύναμις ἐν τοῖς ἄρθροις (ἐσ)τί, †ἔπειτα μέντι κινεῖ†. λίαν δ' ὑγρὰ κωλύεται συντείνεσθαι· τὰ δὲ βόρεια ποιεῖ τινὰ συμμετρίαν, ὥστε καὶ ἰσχύειν 410 καὶ συντείνεσθαι μάλλον. (57) καὶ παλὶν ξηροὶ καὶ μὴ ὑδατώδεις ὄντες οἱ νότοι πυρετώδεις· ὑγρότητα γὰρ ἐνιάσι τοῖς σώμασι θερμὴν ἄλλοτριαν ἅτε θερμοὶ φύσει καὶ ὑγροὶ ὄντες. ἡ δὲ τοιαύτη διάθεσις πυρετώδης, ὁ γὰρ πυρετὸς ἐξ ἀμφοῖν τοῦτοιν ὑπερβολῆς ἐστίν· ὅταν (δ') ὑδάτινοι πνέωσι τὸ ὕδωρ καταψύχει τὴν ἑξίν. τὸν αὐτὸν δὲ τρόπον καὶ ὅσα ἄλλα τῶν σωμάτων περὶ ταύτας (τάς) ἕξεις καθ' 415 ἑκάτερον συμβαίνει γένεσθαι. πλείω γάρ ἐστι τοιαῦτα καὶ ἐν πλείοσιν ὧν ἀπάντων αἱ αὐταὶ καὶ παραπλήσιαί τινες αἰτίαι. (58) καὶ τῶν καρπῶν δὴ καὶ τῶν ἄλλων τῶν τοιούτων ὁμοίως· ἅπαντα γὰρ εἰς τὴν ὑγρότητα καὶ διάλυσιν καὶ τὴν πυκνότητα καὶ σύστασιν καὶ ὅσα ἄλλα τῆς συστοιχίας ἑκατέρας ἀναχθῆσεται. καὶ ἐπὶ τῶν ἀψύχων δ' ὡσαύτως, οἷον αἱ τε ῥηγνύμεναι χορδαὶ καὶ οἱ ψόφοι τῶν κεκολλημένων 420 καὶ ὅσα ἄλλα συμβαίνει διυγραίνομένων καὶ ἀνιεμένων. περὶ (δὲ) τὴν τοῦ σιδήρου κατεργασίαν (*lac. 4 litt.*). πλείω γὰρ φασιν ἐξελαύνειν τοῖς νοτίοις ἢ βορείοις. αἴτιον

404 ἦ A, secl. Turn. : καὶ Furl. 405 τὰδε A : τὰ δὲ Bon. || (δέ τινα) scripsi : lac. 6 litt. A, δὲ Turn. || βαρύτερον Turn. : ἔτερον A 406 οἱ ἄνθρωποι Turn. : ἀνῶν A (*nom. sacr.* = ἀνθρώπων) || αἴτιον Turn. : ἄρτιον A || ὀλίγου Turn. : lac. 9 litt. A 407 γίνεται A, om. S : post γίνεται add. διατηρούμενον διὰ τὴν ἁλέαν Bon. ex *Pr.* 26.42 (cf. *Pr.* 1.24) || [ἦ] ὑγρότης βαρεῖα ἀντὶ κούφου πνεύματος Turn. : ἡ πνεύματος ὑγρότης βαρεῖα ἀντὶ κούφου A (βορέα pro βαρέα B) : ἀντὶ κούφου πνεύματος ὑγρότης βαρεῖα Wim. 408 δύναμις D† || ἄρθροις ἐστί Turn. : ἀθρόοις τι A (τε pro τι N) : post ἐστί add. ταῦτα δ' ἀνίεται ὑπὸ τῶν νοτίων· τὸ γὰρ γλίσχρον ἐν τοῖς ἄρθροις πεπηγὸς μὲν κωλύει κινεῖσθαι ἡμᾶς ὑγρὸν δὲ λίαν ὅν συντείνεσθαι Furl. (cf. *Pr.* 1.24) || ἔπειτα μέντι κινεῖ A (μέντοι pro μέντι D) (obelis inclusi) || δ' ὑγρὰ D† 409 κωλύεται συντείνεσθαι Turn. : κειμένη συντίθεσθαι A || βόρεια Turn. : βόρια A || συμμετρίαν D† || ἰσχύειν Turn. : ἰσχὺν A 410 παλὶν ξηροὶ Turn. : παλιξηροὶ A || ὄντες νότοι Turn., add. οἱ Schn.<sup>5</sup> : οἱ ὄντες τόποι A, om. οἱ V<sup>a</sup> 411 ἐνιάσι Schn. : ἐνίοις A : ἐν Wim. || ante θερμὴν add. καὶ Gigon || ἅτε Turn. : ἔστε A : ἔσται R : ἐμποιοῦσι Bon. ex *Pr.* 26.50 413 δὲ ὑδάτινοι Turn. : ὑδάτινι A : ὑδάτινα V<sup>a</sup> 414 ταύτας (τάς) ἕξεις scripsi (cf. τὰς ἕξεις Schn.<sup>1</sup>) : ταῦτα ἑξῆς A 415 γένεσθαι A : γίνεσθαι Ald. 416 δὴ A : δὲ Schn. 417 διάλυσιν A : διαχύσιν Schn. || πυκνότητα A : ξηρότητα Gigon 418 ἑκατέρας A : ἑκατέρων Wim. 419 om. τε Wim. 420 ante περὶ add. οἷον Schn., οἷον τὰ Gigon || δὲ addidi 421 lac. 4 litt. A : sine lac. D || νοτίοις V<sup>a</sup> : νοτείοις A

405–408 οἷον (βαρὺ)τερον ... †ἔπειτα μέντι κινεῖ†] *Pr.* 1.24, 26.42 410–413 καὶ παλὶν ξηροὶ ... καταψύχει τὴν ἑξίν] *Pr.* 1.23, 26.50 419–420 οἷον αἱ τε ... καὶ ἀνιεμένων] *Pr.* 1.24.862a31–32, [Thphr.] *Sign.* 30.208–209



which reason indeed (Orion) is (in fact) said to be difficult both when it sets and when it rises, because of the indeterminateness of the season (at those times). For they must necessarily be disorderly and irregular.

(56) These things, then, and all other such (phenomena) occur throughout the air and the sky as a whole, (and some such things) as the following affect our conditions. For instance, people feel heavier and more powerless in Notos winds; and the reason is that a great deal of moisture comes out of (a small amount), and heavy moisture comes instead of light wind. Further, strength and power are in the joints, † ... † But too much moisture prevents us from exerting ourselves; Boreas winds, however, produce a certain (sc. balanced) proportion, such that we are strong and exert ourselves more. (57) And again Notos winds, when they are dry and so not full of rain, are fever-producing; for inasmuch as they are hot and moist by nature, they implant in our bodies an extraneous, hot moisture. And such a condition is fever-producing, for fever comes from an excess in both of these; (but) when they blow rainy, the rain cools down the state (of our bodies). In the same way too, however many other (phenomena) happen to occur related to these states of our bodies are due to each (of these qualities). For there are a number of such (effects) and in a number (of bodies), all of which have the same or similar causes. (58) And so it surely is for crops and other such things: for all (such phenomena) will be reduced to moisture and dissolution, and density and solidification, and however many other (pairs) there are from either side of the column. And it is similar, however, in the case of inanimate things, for instance the breaking of gut strings and the noises of glued objects and whatever else happens when objects are moistened and loosened. (But) concerning the manufacturing of iron .... For they say they beat out (iron) better with Notos winds than with Boreas. And the reason is that

δ' ὅτι τὰ μὲν βόρεια ξηραίνει καὶ σκληρύνει, τὰ δὲ νότια ἀνυγραίνει καὶ διαχεῖ· πᾶν δὲ ἀργότερον διακεχυμένον ἢ ὑπεσκληρυμένον. ἅμα δὲ καὶ μάλλον ἰσχύουσι καὶ συντονωτέρως τοῖς βορείοις.

(59) ἀπλῶς δὲ τὰ μὲν τοιαῦτα σχεδὸν ἐμφανεῖς ἔχει τὰς αἰτίας, οἷον ἀπὸ 425  
μίας ἀρχῆς ἀνάλογον ἔχοντα τὸ ἐφεξῆς. ἐκεῖνο δ' ἐν ἀπορίᾳ καὶ ζητήσῃ μάλλον  
γίνεται καθ' ἑκάτερον ὃν, οἷον εἰ μὴ σκληρότης μηδὲ ξηρότης μηδὲ πυκνότης τοῖς  
βορείοις, ἀλλὰ τὰ ἐναντία, καὶ τοῦ νότου δ' ὡσαύτως. τὸ γὰρ παράλογον αἰτίαν  
ἐπιζητεῖ[ν], τὸ δ' εὐλογον καὶ ἄνευ αἰτίας· συγχωροῦσιν δὲ καὶ οἱ ἄνθρωποι· δεινοὶ  
γὰρ προσθεῖναι τὸ ἐλλίπες. (60) ὅτι δὲ ψυχροὶ ὄντες οἱ ἄνεμοι ξηραίνουσι καὶ 430  
θάττον <ῆ> ὁ ἥλιος θερμὸς ὦν καὶ μάλιστα οἱ ψυχρότατοι ταύτην ὑποληπτέον τὴν  
αἰτίαν· ὅτι ἀτμίδα ποιοῦσι καὶ ταύτην ἀπάγουσι καὶ οἱ ψυχρότεροι μάλλον, ὁ δ'  
ἥλιος καταλείπει. διὰ τί <δέ> ποτε λέγεται· «μὴ ποτ' ἀπ' ἡπείρου δείσης νέφος ὡς  
ἀπὸ πόντου χειμῶνος, θέρεος δὲ ἀπ' ἡπείρου μελαίνης»; ἡ διότι τοῦ μὲν χειμῶνος  
ἢ θάλαττα θερμότερα, ὥς(τ') εἴ τι <συνέστη, δηλὸν ὅτι ἀπ' ἀρχῆς> συνέστηκεν 435  
ἰσχυρὰς; ἐλύθη γὰρ ἂν τῷ ἀέρι διὰ τὸ ἀλεεινὸν εἶναι τὸν τόπον. τοῦ δὲ θέρους ἡ  
μὲν θάλαττα ψυχρά καὶ τὰ πόντια πνεύματα, ἡ δὲ γῆ θερμῇ, ὥστ' εἴ τι ἀπὸ τῆς γῆς  
<φέρεται, διὰ μείζονος ἀρχῆς> συνέστη· διελύθη γὰρ ἂν, εἰ ἀσθενὲς ἦν. (61) τὸ δὲ  
μὴ πνεῖν νότου λαμπροῦ ἐν Αἰγύπτῳ <ὡς τινὲς φασι> μηδ' ἡμέρας δρόμον ἀπέχοντα  
καὶ νυκτὸς ψεύδος. δασύνειν δὲ τὸν οὐρανὸν μάλιστα βορέαν καὶ ἀργέστην, τὸν δὲ 440  
νότον παραφέρειν. τὸ δ' ἔωθεν ἐπινέφειν καὶ δασύνειν ἄχρις ἂν ὁ ἥλιος ἀνίσχει, οὐχ  
ῦειν δὲ διὰ τὸ μὴ ἔχειν ὅπου προσκαθίζεται τὰ νέφη. νότον δὲ καὶ εὐρον καὶ ὅσα  
ἀπὸ μεσημβρίας ἀρχεσθαι μὲν ἀπ' ἀνατολῶν συμπαραχωρεῖν δὲ τῷ ἡλίῳ, βορέαν  
δὲ καὶ ἀργέστην ἀνάπαλιν ἀπὸ δυσμῶν ἐπ' ἀνατολάς.

422 δ' D† || διαχεῖ Furl. (cf. Thphr. CP 2.6.1) : διανθεῖ A : διαίνει vel διαλύει Turn. 423 ἢ Bon. : καὶ  
A || ὑπεσκληρυμένον Turn. : ὑπεσκληρυμένον A || ἰσχύουσι Turn. : ἰσχυοῦσι A 426 om. μίας Wim.  
(1866) || ἐν ἀπορίᾳ B<sup>ms</sup> : ἡ ἀπορία A 428 ante τοῦ add. ἐπί Turn. || om. δ' Wim. 429 ἐπιζητεῖ  
Turn. : ἐπιζητεῖν A || δὲ καὶ A : [δὲ] καὶ Anon. : om. Schn.<sup>1</sup> || ἄνθρωποι Anon., add. οἱ Wim. : αὐτοὶ  
D† 430 ψυχροὶ ὄντες D† || ἄνεμοι D : ἄναιμοι A 431 <ῆ> B<sup>sl</sup> || θερμὸς ὦν D† || ὑποληπτέον τὴν D†  
433 <δέ> scripsi 434 δὲ Furl. : δ' A 435 ὥστ' εἴ τι Turn., add. <συνέστη, δηλὸν ὅτι ἀπ' ἀρχῆς> Bon.  
ex Pr. 26.57 : ὡς ἐπεὶ A 436 τοῦ δὲ Turn. : τοῦτε A : τοῦτο M 437 ἡ δὲ γῆ θερμῇ D† || ὥστ' εἴ  
τι Turn. (ὡς pro ὥστ' Gigon) : ὥστε δὴ A 438 <φέρεται, διὰ μείζονος ἀρχῆς> Bon. ex Pr. 26.57 ||  
εἰ ἀσθενὲς ἦν Turn. : εἰς ἀσθeneῖαν A 439 νότου λαμπροῦ A : νότον λαμπρόν Turn. || ὡς τινὲς φασι  
addidi ex Vent. 8.000, cf. Furl. p. 107 || ἀπέχοντα Bon. ex Vent. 8 : ἀπέχοντι A 441 τὸ Bon. : αἱ A  
: τοὺς Furl. || ἐπινέφειν Turn. : ἐπινήφειν A : ἐπινεφεῖν Wim. || ἀνίσχει B : ἀνίσχειν A : ἀνίσχει Schn.  
442 προσκαθίζεται Schn.<sup>1</sup> : προκαθίσταται A : προκαθίσταται V

422 τὰ μὲν βόρεια ... καὶ διαχεῖ Thphr. CP 2.6.1 430–433 ὅτι δὲ ψυχροὶ ... ἥλιος καταλείπει Pr.  
26.28 433–438 διὰ τί <δέ> ποτε ... εἰ ἀσθενὲς ἦν Pr. 25.7.938b10–13, 26.57 438–440 τὸ δὲ μὴ  
πνεῖν ... νυκτὸς, ψεύδος Pr. 26.44

Boreas winds dry and harden, whereas Notos winds moisten and relax; and everything is easier to work when made spreadable than when hardened. But at the same time too, (smiths) are stronger and (work) more intensely in Boreas winds.

(59) Basically, such (phenomena) have fairly obvious explanations, for instance when they have a consequence that follows logically from a single principle. But this (next sort of case) arises in perplexity and more in (need of) inquiry, pertaining to each (wind): namely, if neither hardness nor dryness nor density (come) with Boreas winds, but the opposites, and similarly too for Notos. For what is contrary to reason demands an explanation, but what is reasonable (stands) even without an explanation. And people in fact agree (to this); for they are clever (enough) to supply what is missing. (60) But that the winds, when they are cold, produce dryness even more quickly (than) the sun, which is hot, and especially the coldest (winds), one must suppose this is the explanation: that they produce vapor and carry it off, and the coldest ones (produce) more, but the sun leaves it behind. (But) why ever is it said: "Fear not a cloud from the mainland in winter as much as from the open sea, and in summer from the dark mainland"? Is it because in winter the sea is hotter, so that if some (cloud) (formed, it is clear that) it has formed (from) a strong (source)? For (otherwise) it would have been dissolved in the air because the region is warm. But in summer the sea is cold and so are the sea winds, whereas the land is hot, so that if a (cloud) (is carried) from the land, it has formed (from a more powerful source); for it would have been dissipated, if it were weak. (61) That a vigorous Notos does not blow in Egypt, (as some say,) extending for a day and night run (inland), is false. And (they say) that Boreas and Argestes most make the sky cloudy, but Notos carries (the clouds) away. And (they say) that the morning (breezes) bring clouds and so make (the sky) cloudy until the sun rises, but it does not rain because the clouds do not have a place to settle. And (they say) that Notos and Eurus and however many (winds there are) from the south begin from sunrise and move along with the sun, whereas conversely Boreas and Argestes (move) from sunset to sunrise.

(62) <...> ἐν Σικελίᾳ· καικίαν δ' οὐ καλοῦσιν ἀλλ' ἀπηλιώτην· δοκεῖ δ' οὐχ ὁ 445  
 αὐτὸς εἶναι τισιν ἀλλὰ διαφέρειν, ὅτι ὁ μὲν δασύνει τὸν οὐρανόν, ὁ δ' οὐ (lac. 6  
*litt.*) †πάρεγγυς† δὲ (lac. 7 *litt.*) οἱ μὲν οὖν Ὀλυμπίαν, οἱ δὲ σκίρωνα καλοῦσιν, οἱ  
 <δὲ> περὶ σικελίαν κίρκιαν. τὸν <δ'> ἀπηλιώτην ἐλλησποντίαν, κάρβαν δὲ Φοίνικες,  
 βερεκ<υντίαν> δ' <οἱ> ἐν τῷ Πόντῳ <...>

445 ante ἐν Σικελίᾳ lac. indicavi || καικίαν δ' D : καὶ κίαν δ' A : δὲ καικίαν Anon. || δοκεῖ δ' οὐχ D†  
 446 δασύνει D† 447 πάρεγγυς A (obelis incl. Gigon) : ἀργέστην Bon. : fort. ἰάπυγα, cf. Alex.  
*in Mete.* || lac. 7 *litt.* A : ἀργέστην Gigon || secl. οὖν Bon. 447–448 οἱ <δὲ> περὶ Schn.<sup>1</sup> : ὑπερ A  
 448 δὲ κίρκιαν Turn., om. δὲ Cout. : δερκίαν A : om. r || <δ'> ἀπηλιώτην Wildberg : ἀπηλιώτην <δὲ>  
 Ald. 449 βερεκυντίαν Turn. ex Alex. *in Mete.* : βερεῖ (lac. 7 *litt.*) A || <οἱ> Schn.<sup>1</sup> || post Πόντῳ lac.  
 indicavi

(62) ⟨...⟩ in Sicily: they do not call (it) ‘Caecias’ but ‘Apeliotes’; but to some it does not seem to be the same but to be different, because the one makes the sky cloudy whereas the other does not .... And †nearby† ... Now some call (it) ‘Olympias’, some ‘Sciron’, and those around Sicily ‘Circias’. ⟨And⟩ (some call) Apeliotes ‘Hellespontias’, but the Phoenicians (call it) ‘Carbas’ and ⟨those⟩ in the Pontus ‘Berec(yntias)’ ⟨...⟩

# Commentary

## The Title

There are few complications concerning the title of Theophrastus' treatise on winds. Diogenes Laertius' list of the works of Theophrastus includes *περὶ ἀνέμων α'* (5.42 [93 Dorandi]). This title is confirmed by Alexander of Aphrodisias who, quoting a passage from *On Winds* (§ 55) in his commentary on Aristotle's *Meteorology*, refers to Θεόφραστος ἐν τῷ περὶ ἀνέμων (*CAG* 3.2, p. 97.10–17).<sup>1</sup> Further, there are no significant variations in the manuscript tradition: Θεοφράστου Περὶ ἀνέμων.<sup>2</sup>

Concerning the titles of Theophrastus' works, Steven White (2002, 10) warns that “we should be wary of two anachronistic assumptions”: (1) that the titles originated with Theophrastus, and (2) that any of these works had a single standard title.<sup>3</sup> Now whether or not Περὶ ἀνέμων originated with Theophrastus, I assume the opening line of the work is his (more on that shortly), and as White indicates there is a close connection between titles and incipits (2002, 19–24): Only the title of Theophrastus' *On Stones* does not reflect its incipit; the title of *On Sense Perception* is virtually identical to its opening words, and for the rest of the *opuscula* each title is formed by combining *περί* with the genitive (singular or plural) of the key word in the incipit. In the case of *On Winds*, Ἡ τῶν ἀνέμων φύσις becomes Περὶ ἀνέμων. Below, in commenting on the opening line, I say more about why the title included the plural ἀνέμων.

Regarding the second assumption, the only possible alternative title that has any support is Περὶ πνευμάτων: Diogenes Laertius (5.45 [161 Dorandi]) attributes to Theophrastus a work in one book with this title. Now whereas ἀνεμος refers specifically to wind, πνεῦμα can refer to any current or flow of air (breath or wind). Fortenbaugh et al. (1992, 2: 108–109) list Περὶ πνευμάτων (translated *On Breaths*) under Human Physiology (title no. 328.15), adding parenthetically “unless this is a variation for *On Winds*.” Similarly, Sharples (1998, 18) takes this to be either an alternative title for *On Winds* or the title of

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1 The Medieval Latin translation of Priscian Lydus' *Answers to Khosroes* (*Solutiones ad Chosroem*) (6th c. AD) refers to Theophrastus' Περὶ ἀνέμων by what has become its standard Latin title: *De ventis* (*CAG* Supp. Arist. 1.2, p. 42.6).

2 Two irrelevant exceptions: ms. V omits Theophrastus' name, ms. V<sup>a</sup> omits both name and title.

3 Of course, being wary of these assumptions does not imply acceptance of the view that there were in fact no titles given to these works by Theophrastus. On Theophrastean titles, see also Fortenbaugh (2003, 55–56).

a work on breaths. Usener (1858, 21), Gigon (1937, x), Gottschalk (1967, 18), and Steinmetz (1964, 352) all think the title a doublet for *On Winds*.<sup>4</sup> Regenbogen (1940, 1408) takes it to be an addendum to Theophrastus' *Metarsiology* (the thirteenth section of which has the title "The account of the causes of different winds").<sup>5</sup>

Like Sharples, I am non-committal. On the one hand, πνεῦμα in the sense of 'breath' does play a (sometimes significant) role in Theophrastus' accounts of human physiology: This is especially true in his *On Sweat*,<sup>6</sup> but also in *On Dizziness* (1.2, 12.98), *On Fainting* (345 FHS&G), and *On Paralysis* (346 FHS&G). And note that a source-text for Theophrastus' *On Nature* (in Philoponus' commentary on Aristotle's *Physics*) refers to "the optical *pneuma*" (τοῦ ὀπτικῶν πνεύματος) and its role in vision (144A16 FHS&G).<sup>7</sup> On the other hand, the words ἄνεμος and πνεῦμα are both used to describe winds (and often seem to be used synonymously in Peripatetic works on winds).

This is a good point at which to mention briefly the wind-terminology in *On Winds*. Theophrastus seems in this regard to agree (generally, if not in details) with the author of the *On the Cosmos* (*De mundo*) attributed to Aristotle. In the discussion of winds in ch. 4, the author distinguishes three terms (πνεῦμα, ἄνεμος, and αὔρα): he says πνεῦμα is the broadest term, referring to both the breath in living things as well as to wind (broadly understood). In the latter sense, he further divides πνεῦμα into ἄνεμος, the πνεῦμα blowing in the air (i.e. wind), and αὔρα, the πνεῦμα that blows out of moisture (on the earth or from bodies of water smaller than the ocean; the example he goes on to give is a gulf-breeze).<sup>8</sup> In general, Theophrastus tends to use these terms in this

4 Aristotle begins his account of wind in *Mete.* 2.4 with Περί δὲ πνευμάτων κτλ.

5 On this work, see the Introduction, p. 1 n. 6.

6 See the entry on πνεῦμα in Fortenbaugh's index to his edition of this work (2003, 154).

7 On Theophrastus' *On Nature*, see note 12 below. One may wonder why, if Περί πνευμάτων was the title of a different work, comparable to the *On Breath* (Περὶ πνεύματος) in the *corpus Aristotelicum*, it did not likewise have the singular πνεύματος. Perhaps whereas *On Breath* is a general Peripatetic account of *pneuma* in the body, Theophrastus' *On Breaths*—if there was such a work—dealt with the variety of breaths operating in human physiology (e.g. the optical *pneuma*). Such a division of labor in Peripatetic inquiry is discussed below (pp. 72–73) in connection with *On Winds*.

8 ἐκ δὲ τῆς ξηρᾶς ὑπὸ ψύχους μὲν ὥσθεισης ὥστε ρεῖν ἄνεμος ἐγένετο· οὐδὲν γάρ ἐστιν οὗτος πλὴν ἀήρ πολλὸς ῥέων καὶ ἀθρόος· ὅστις ἅμα καὶ πνεῦμα λέγεται. λέγεται δὲ καὶ ἐτέρως πνεῦμα ἢ τε ἐν φυτοῖς καὶ ζώοις καὶ διὰ πάντων διήκουσα ἔμψυχός τε καὶ γόνιμος οὐσία, περὶ ἧς νῦν λέγειν οὐκ ἀναγκαῖον. τὰ δὲ ἐν ἀέρι πνέοντα πνεύματα καλοῦμεν ἀνέμους, αὔρας δὲ τὰς ἐξ ὑγροῦ φερομένας ἐκπνοάς. (394b7–13)

way.<sup>9</sup> The most important difference to keep in mind, however, is between πνεῦμα (any flow of air) and ἄνεμος (which is one major kind of πνεῦμα).<sup>10</sup> I originally planned to translate πνεῦμα, ἄνεμος, and αὔρα ‘current (of air)’, ‘wind’, and ‘breeze’ respectively, but the result was clumsy or confusing. So although ἄνεμος and αὔρα are consistently rendered ‘wind’ and ‘breeze’ respectively, my translation of πνεῦμα depends on context. In most cases it too is translated ‘wind’, though occasionally ‘air-flow’ or ‘breeze’ is preferable.

The plural (ἀνέμων) in the title is not insignificant. As White notes (2002, 28), the plural in Theophrastean titles “indicates in some cases classes of discrete material objects (*Lap.*, *Pisc.*); in others, the variety within a class of processes, states, or activities (*Od.*, *Vent.*, *Vert.*, *Sign.*).” But I disagree with White’s account of the *reason* for the plural in the case of *On Winds*—namely, that this work argues “against attempts to reduce all winds to manifestations of a single substance: unlike fire, wind is not a distinct material nature (a view Aristotle criticizes in *Mete.* 1.13), but simply a movement of air (cf. *Vent.* 29), and its diverse kinds therefore essentially distinct.” Someone with Theophrastus’ (or Aristotle’s) conception of wind could write an account of the nature of wind *per se* (and the singular *On Wind* would be an appropriate title of such a work), as well as another account of the different winds, e.g. Boreas, Notos, Zephyrus (and the plural *On Winds* would be an appropriate title of *that* work)—which is not to say Theophrastus did write the former. In fact, Aristotle does give a general account of wind in his *Meteorology* (see 1.13 and 2.4–6), whereas Theophrastus’ *On Winds* discusses the variety of winds in the sense just indicated. The two projects are distinct, but there is no reason to think they are not *in general* consistent.

This having been said, I do not deny that there is a tension between the two projects, nor that there are in the study of the various winds many exceptions to the general account. Sophia Connell’s description of the early sections of the *Generation of Animals* in relation to later ones is instructive (2016, 69): “It is clear that *GA* I in particular finds Aristotle keen to link the phenomena of animal generation to his analysis of all natural objects (e.g. from the *Physics*).” But in later sections, “Rather than moving to and setting out general principles

9 These are basically the meanings one finds in modern dictionaries (e.g. LSJ and BDAG): πνεῦμα (‘breath’ and ‘wind’); ἄνεμος (‘wind’); αὔρα (‘breeze’).

10 The title of N. Blemmydes, *Epitome physica* 17, Περὶ ἀνέμων καὶ τῶν λοιπῶν πνευμάτων, would work quite well as a title for Theophrastus’ treatise. (The text of this 13th c. Byzantine work can be found in *Patrologia Graeca* vol. 142, pp. 1004–1320; ch. 17 is on pp. 1164–1172.) Ch. 17 is thoroughly Aristotelian, though I see no evidence that Blemmydes had a copy of Theophrastus’ *On Winds*.



in embryological theory, and linking these to first principles in the broader fields of metaphysics and natural philosophy, Aristotle seeks to shift from paradigm cases to explaining more and more exceptional ones.”<sup>11</sup> Perhaps because it falls under meteorology—which deals with things that happen in accordance with nature (κατὰ φύσιν), but a more disorderly (ἀτακτοτέραν) nature than that of the heavens (Arist. *Mete.* 1.1.338a20–b4)—anemology will contain far more exceptions to the paradigm cases.

Issues related to the title are further discussed in the commentary on §1.

### *On Winds* 1

§1 is an appropriate opening to *On Winds* (in contrast to §62, which is not an appropriate conclusion to the treatise, but evidence of its damaged and perhaps unfinished state). Theophrastus contrasts the nature of winds *per se* (and so their causes) with the subject matter of this treatise: the various winds, and why they have the different attributes by which they are distinguished.

Ἡ τῶν ἀνέμων φύσις, ἐκ τίνων μὲν καὶ πῶς καὶ διὰ τίνος αἰτίας γίνεται, τεθεώρηται πρότερον·

Note, first, the asyndeton: the absence of δέ in the opening of this work. As White remarks (2002, 31): “The presence or absence of connectives in incipits may seem insignificant. But extant works of classical prose rarely begin with one; and in the exceptions, it implies the work is designed as a sequel.” The absence of δέ would thus suggest that *On Winds* was not part of a larger work—*contra* Steinmetz (1964, 12), who speculated that it was originally book 13 of Theophrastus’ *Physics*. In this connection, see Gottschalk (1967, 18–19) and Sharples (1998, 2–5).<sup>12</sup>

The words Ἡ τῶν ἀνέμων φύσις set out one half of the subject matter of the study of wind: the nature of winds *per se* (which subject, Theophrastus says, has been considered before). It is contrasted (hence the μὲν—δέ construction in the first sentence) with the study of the nature and thus the attributes of each of the different winds, and this is the subject of the present treatise. So Ἡ τῶν

<sup>11</sup> Connell’s entire discussion of this issue (2016, 69–81) is valuable.

<sup>12</sup> Diogenes Laertius attributes to Theophrastus an *On Nature* (Περὶ φύσεως) in 3 books (5.45 [177 Dorandi]), an *On Natural Things* or *On Natural Philosophers* (Περὶ φυσικῶν) in 18 books (5.46 [178 Dorandi]), and a *Physics* (Φυσικῶν) in 8 books (5.46 [180 Dorandi]). See 137.1–8 FHS&G for these and related titles, with the commentary in Sharples (1998, 1–13).

ἀνέμων φύσις is doing double duty. Theophrastus could have begun this work Ἡ τοῦ ἀνέμου φύσις (“The nature of wind ...”), as he begins *On Fire* Ἡ τοῦ πυρὸς φύσις, with no difference in meaning: ‘the nature of (all of) the winds’—the nature all of the winds have in common—is the same as ‘the nature of wind’. But that would not convey the subject matter of *On Winds*, which I suspect he wanted to do in the opening line. The next part of the line is also doing double duty. Although the study of the nature of wind *per se* consists in discovering “out of what and how and through what causes it (sc. wind) comes to be,” such essential features of wind are obviously not dispensed with when Theophrastus turns to investigating the different winds: the study of each of their natures will involve discovering “out of what and how and through what causes (each) comes to be.”<sup>13</sup>

Dividing a field of study in two (or distinguishing two parts), and announcing that one part has been considered elsewhere and the other will now be discussed, is a feature of Theophrastus’ *On Sweat* (see §1, with Fortenbaugh 2003, 62–63). But *On Winds* does more than that: it follows what Aristotle, toward the beginning of *Phys.* 1.7, describes as the natural way of undertaking an investigation: discuss the common characteristics or matters first, and then the particular ones relevant to each case.<sup>14</sup> Also important in this context is a passage on Theophrastus’ *On Metals*, in Alexander of Aphrodisias’ commentary on Aristotle’s *Meteorology*

He (sc. Aristotle) says that he has spoken in general and in a universal way both about things that are quarried and about those that are mined—what the difference between them is, and whence and where they come to be. And he says that it is necessary to examine each of the kinds that have been mentioned individually, and to consider their particular properties.

13 Cf. White (2002, 23): “An opening reference to ‘the nature of the winds’ serves only to dismiss this basic question as analyzed previously (!), and to introduce instead a study of the ‘differences’ (in size, temperature, and behavior) in winds, which Theophrastus proposes to analyze in terms of the ‘powers and attendant attributes’ of their nature .... [T]he opening phrase gives a misleading impression of the work as a whole, but the initial term adopted for the title does not.” (Exclamation point in the original.)

14 ἔστι γὰρ κατὰ φύσιν τὰ κοινὰ πρῶτον εἰπόντας οὕτω τὰ περὶ ἑκάστον ἴδια θεωρεῖν (189b31–32). Cf. Arist. *DC* 1.2 and *Mete.* 1.1, and Thphr. *CP* 1.1.1. Aristotle’s *On the Movement of Animals* moves in the opposite direction, setting aside the particular kinds of movements of animals as having been considered before, and turning to the study “in general concerning the common cause for moving with any movement whatever” (ὅλως δὲ περὶ τῆς κοινῆς αἰτίας τοῦ κινεῖσθαι κίνησιν ὁποιανοῦν) (1.698a1–5).

Theophrastus has dealt with these matters in his *On Things that are Mined* and in certain other (works).<sup>15</sup>

*in Mete.* 3.6.378b5–6 [CAG vol. 3.2 p. 178.10–15 = 197A FHS&G]; FHS&G trans.

In his *Metaphysics*, Theophrastus says that complete knowledge comes from grasping what is the same in the many, both universally and with regard to each particular individually.<sup>16</sup> I assume that is relevant here: The complete knowledge of wind consists in knowing the nature of wind *per se* and the particular characteristics of each of the various winds (and further, therefore, of each concrete wind). So there is no reason to see a fundamental difference between Aristotle and Theophrastus in their accounts of winds (at least not in this respect): that Aristotle provided a general account of wind, and Theophrastus an account of the various winds, reflects more a division of labor in a common inquiry than it does a difference in philosophical or scientific outlook (whatever other differences in their accounts of wind there might be). (Cf. e.g. Gottschalk 1967, 25.)

Before considering the individual items in the phrase that describes the nature of winds—ἐκ τίνων ... καὶ πῶς καὶ διὰ τίνας αἰτίας γίνεται—it is worth keeping in mind the various options possible in interpreting the line as a whole. I think there are three:

(1) Taking the line straight, as it were, ἐκ τίνων and πῶς would not refer to (what Theophrastus considered) causes, as causes would be covered solely by the third item (διὰ τίνας αἰτίας). But I find it highly unlikely that ἐκ τίνων and πῶς do not refer to causes of wind (as will become clear).<sup>17</sup>

(2) Taking the second καὶ to be exegetical, the phrase would mean “out of what and how, that is (or ‘and so’) through what causes, it comes to be,” which would imply that according to Theophrastus, one need only take account of material and efficient causality—if πῶς refers to this latter—in understanding the winds.<sup>18</sup>

15 καθόλου μὲν φησι καὶ κοινῶς εἰρήσθαι περὶ αὐτῶν τῶν τε ὀρυκτῶν καὶ τῶν μεταλλευτῶν, τίς τε αὐτῶν ἢ διαφορὰ καὶ πόθεν ἢ γένεσις καὶ ποῦ· ἰδίᾳ δὲ δεῖν φησιν ἕκαστον τῶν εἰρημένων γενῶν προχειρίζομένους τὰ οἰκεῖα αὐτοῖς ἐπισκοπεῖν. περὶ ὧν Θεόφραστος πεπραγμάτευται ἐν τε τῷ Περὶ τῶν μεταλλευομένων καὶ ἐν ἄλλοις τισίν.

16 ὅλως δὲ τὸ ἐν πλείοσιν τὸ αὐτὸ συνιδεῖν ἐπιστήμης, ἥτοι κοινῇ καὶ καθόλου λεγόμενον ἢ ἰδίᾳ πως καθ' ἕκαστον, οἷον ἀριθμοῖς γραμμαῖς, ζώοις φυτοῖς· τέλεος δ' ἢ ἐξ ἀμφοῖν (18.4.8b24–27).

17 This is as good a place as any to note that although αἰτίας here clearly refers to causes, elsewhere it makes more sense to render αἰτία ‘explanation’ or ‘reason’ (which I do).

18 In what follows, I will be using the standard scholarly terms for describing Aristotle's account of the four causes: material (cause or causality), efficient, formal, and final.

(3) Taking the first two items to refer to two kinds of causes, with the third referring to two or more others (i.e. “through what [other] causes”). On a plausible version of this interpretation, ἐκ τίνων refers to material causality, πῶς to efficient causality, and διὰ τίνος αἰτίας to any causes that do not fall neatly under material or efficient causality alone.<sup>19</sup> For example, in § 9, discussing the differences between Boreas and Notos, Theophrastus says: “one must refer to that explanation (or ‘cause’, αἰτίαν) assigning particular (phenomena) to their locations.” I do not think Theophrastus has in mind any one of the four causes, but rather a complex combination of specific material and efficient causes united in a location.

In *Mete.* 1.2, Aristotle claims that the analysis of meteorological phenomena will be in terms of material causality and efficient causality, and it should become clear that in *On Winds* Theophrastus similarly does not employ any of Aristotle’s four causes besides these two.<sup>20</sup> That would support interpretation (2). But given the various complex causes Theophrastus explicitly refers to as causes throughout *On Winds*,<sup>21</sup> (3) could be the correct interpretation as well.

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Note that the Greek equivalents of ‘final causality’ etc. do not occur in Aristotle (or Theophrastus). I provide Aristotle’s descriptions of the four causes in due course.

- 19 An *implausible* version of this interpretation is Bonaventura’s (1593, 63). In an effort to make this line directly parallel Aristotle’s four causes, he takes ἐκ τίνων to refer to material causality, πῶς to formal causality, and διὰ τίνος αἰτίας to efficient and final causality. (I later present reasons for rejecting the inclusion of final causality here, and I see no evidence that Theophrastus includes Aristotelian formal causality in his analysis of winds—even assuming πῶς could be used to convey that.)
- 20 Theophrastus, like Aristotle, states that the search for causes is central to the study of nature (see e.g. Thphr. *Metaph.* 9a23–b8 and 144A FHS&G), and he frequently describes the causes of natural phenomena (including the winds)—note the title Περὶ φυτῶν αἰτιῶν. Although there nowhere survives a discussion of Aristotle’s four causes in the extant works of or fragments from Theophrastus, he does distinguish efficient and final causality (see e.g. *Metaph.* 4b19–5a6) and famously raises *aporiai* about the application or scope of Aristotle’s conception of final causality (see *Metaph.* 10a5–12a2, more on which below). For Aristotle’s account of the four causes, see *Phys.* 2.3 & 7–9, *GC* 2.9, *Metaph.* A.3 & Δ.2. These provide the framework for the following discussion of ἐκ τίνων, πῶς, and διὰ τίνος αἰτίας. Diogenes Laertius (5.49 [260 Dorandi]) attributes to Theophrastus an *On Causes* in one book (Περὶ αἰτιῶν = 137.9 FHS&G); perhaps he discussed the four causes more formally there, though virtually nothing can be said about this work (see Sharples 1998, 14).
- 21 For example, these are some of the causes said to explain the particular characteristics of certain winds: the melting of snow (§ 11), the rising of the sun (§ 16), the height of certain hills (§ 27), the land lying in hollows (§ 30), the wet air being cold (§ 46). This is not to say that Theophrastus, in his study of winds at least, makes use of the ‘method of multiple explanations’ (see e.g. Bakker 2016, ch. 2). With this in mind, compare *Metars.* 13 (on the causes of the different winds) with e.g. *Metars.* 1 (on the seven causes of thunder).

I think (2) is superior to (3), however, as the latter stretches the Greek a bit (requiring “what [other] causes”). But not much hangs on this, for as I indicated the complex causes Theophrastus refers to can all be reduced to material and efficient causality.

The opening line of *On Winds* should be compared to a passage in Aristotle, *Mete.* 1.13, where he says that the appropriate investigation (σκέψιν) into wind involves these questions (primarily, though there are others): “What is wind, and how does it come to be, and what is its moving (cause), and what is the source from which they come?” (τί τ’ ἐστὶν ὁ ἄνεμος, καὶ γίγνεται πῶς, καὶ τί τὸ κινούν, καὶ ἡ ἀρχὴ πόθεν αὐτῶν;) (349a31–33).

I turn now to considering each of these key words or phrases from our passage (ἐκ τίνων, πῶς, and διὰ τίνος αἰτίας):

#### A ἐκ τίνων

In *Phys.* 2.3, Aristotle begins his formal discussion of the four causes (περὶ τῶν αἰτίων, 194b16), and the first one he describes is the material cause: “that out of which, being present in (it), something comes to be” (τὸ ἐξ οὗ γίγνεται τι ἐνυπάρχοντος)—for example, bronze is in this sense a cause of a statue (194b24–26; cf. *Metaph.* Δ.2.1013a24–25). Later in the same chapter, he says this is the cause in the sense of matter (ὡς ὕλη, 195a8). In the summary of the four causes in *Metaph.* Α.3, he refers to this one as “the matter and/i.e. the substratum” (τὴν ὕλην καὶ τὸ ὑποκείμενον, 983a30). In *Mete.* 1.2, describing the material causes which in part explain meteorological phenomena, Aristotle says that these are the four elements (earth, air, fire, and water), the two sets of contrary characteristics of which they consist (i.e., the hot and the cold, and the moist and the dry), and the natural motions of these elements (down or up, i.e. toward or away from earth). He is here depending on the analysis of matter in his *Generation and Corruption* (see especially 2.3–4). There Aristotle says of the four elements that these “apparently simple bodies” (τοῖς ἀπλοῖς φαινομένοις σώμασι, 2.3.330b2) can in fact be further analyzed according to two pairs of contrary attributes: “fire is hot and dry, air hot and moist ..., water cold and moist, and earth cold and dry” (τὸ μὲν γὰρ πῦρ θερμόν καὶ ξηρόν, ὁ δ’ ἀήρ θερμόν καὶ ὑγρόν ..., τὸ δ’ ὕδωρ ψυχρόν καὶ ὑγρόν, ἡ δὲ γῆ ψυχρόν καὶ ξηρόν, 2.3.330b3–5). It follows, therefore, that “all (of these) can by nature change into each other” (ἅπαντα πέφυκεν εἰς ἀλλήλα μεταβάλλειν, 2.4.331a13; cf. *Mete.* 1.3.339a36–b2).

Theophrastus certainly differed from Aristotle, in some important respects, on the nature of the four elements (though it is not entirely clear to what extent).<sup>22</sup> For example: fire, he says at the beginning of *On Fire*, is the most pecu-

22 See Steinmetz (1964, 111–147), Gottschalk (1967, 23–24), Longrigg (1975, 219–222), and Sharples (1998, 113–116).

liar or special element, different in important ways from the other three (1). And most significant in connection with *On Winds*, whereas Aristotle regarded air as hot and moist, Theophrastus considered air essentially cold (25): “When both the cold and the moist are combined, they are more destructive, for opposites are destroyed by opposites, and fire is hot and dry .... Air extinguishes qua cold, water qua moist.”<sup>23</sup> Nevertheless, the view that earth, air, fire, and water are elemental seems to be part of the framework within which Theophrastus explains meteorological phenomena—whatever his differences with Aristotle, and although he does not always use the same language.<sup>24</sup>

In the passage under discussion, he is clearly referring to material causality, though he uses the plural ἐκ τίνων rather than Aristotle’s ἐξ οὗ.<sup>25</sup> He is concerned both with the material causality of wind in general and of the various winds—and the study of the one will surely build on what one concludes about the other. The important question is: What precisely does Theophrastus have in mind in referring to that out of which winds come to be?

Judging from the above mentioned account of Aristotle, and especially Theophrastus’ discussion of wind in *Metars.* 13 (more on this shortly) and of the various winds in *On Winds*, I take it he includes all of the following under ἐκ τίνων:

1. The four elements (with air and water being especially important, but also the fire of the sun).<sup>26</sup>
2. The characteristics of the elements (taken individually or as pairs of opposites).<sup>27</sup>

23 συντεθέντα μὲν οὖν ἄμφω, τό θ’ ὑγρόν καὶ τὸ ψυχρόν, μάλλον φθείρει (γίνεται γὰρ τοῖς ἐναντίοις ὑπὸ τῶν ἐναντίων ἢ φθορά· τὸ γὰρ πῦρ θερμὸν καὶ ξηρόν) .... ὁ μὲν γὰρ ἀήρ, ἢ ψυχρὸς, σβέννυσι, τὸ δ’ ὕδωρ, ἢ ὑγρόν.

24 Theophrastus dealt with these issues elsewhere: see e.g. 171–172 FHS&G, 172 (= Galen in *Hp. Aph.* 14) attributing to him a work entitled *On the Hot and the Cold*.

25 Coutant & Eichenlaub would likely consider this a significant difference, in the case of *On Winds*: In their view, Theophrastus was willing “to accept a multiplicity of causes for what was, in Aristotle’s view, a unified and integrated system headed by the doctrine of the double anathymiasis” (1975, xl). It is more likely, however, that (whatever their differences) Aristotle too would have employed various material causes to describe the different winds, and would even have granted that multiple material causes are necessary to explain wind in general (e.g. air, the hot, dry exhalations).

26 Cf. Arist. *Mete.* 1.2.339a27–30. On the fire of the sun, see Theophrastus, *On Fire* 5–6. On the sun in *On Winds*, see §§ 2, 10–12, 15–19, 23–24, 31, 40–41, 45, 47–49, 60–61.

27 On the two pairs of contraries explicitly falling under ἐκ τίνων, consider Theophrastus’ *History of Plants*: Early on, he says that of the parts (τὰ μέρη) of plants, “first and most

3. The natural motions of the elements.<sup>28</sup>
4. The elements in transitional states, or in combination: especially exhalations and vapors.<sup>29</sup>

As a brief sample of the material causes of winds, note that Theophrastus' *Metars.* 13 begins: "Wind is formed from vapor which is composed of fine and thick (parts)" (13.2).<sup>30</sup> And in the preliminary accounts of Boreas and Notos (§§ 2–3), these are described in terms of compressed air and its temperature (cold and hot). Such explanations in terms of the elements and their characteristics are ubiquitous in the *On Winds*.

## B πῶς

In his account of the four causes in *Phys.* 2.3, Aristotle describes the efficient cause as "the primary principle of change or rest" (ἡ ἀρχὴ τῆς μεταβολῆς ἢ πρώτη ἢ τῆς ἡρεμύσεως), and "in general, the maker of what is made and the changer of what is changed" (ὅλως τὸ ποιοῦν τοῦ ποιουμένου καὶ τὸ μεταβάλλον τοῦ μεταβαλλομένου) (194b29–32)—so, the one who makes the bronze into a statue is the statue's efficient cause.<sup>31</sup> And where τὸ ἐξ οὗ ("the out of what") refers to the material cause, ὑφ' οὗ ("by what") is sometimes used to indicate the efficient cause.<sup>32</sup> In *Mete.* 1.2, Aristotle identifies the primary efficient cause as "the

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- important (πρώτα καὶ μέγιστα) and common to most are root, stem, branch, and twig" (1.1.9). Returning to "the most important" parts a bit later, he says "it is necessary to attempt to say *out of what* these are composed (ἐξ ὧν ... σύγκειται), starting from the primary (parts) (ἀπὸ τῶν πρώτων)," which, he says, "are the moist and hot" (ἐστὶ τὸ ὑγρὸν καὶ θερμόν) (1.2.4).
- 28 As a special kind of characteristic of the four elements, these too would seem to fall under ἐκ τίνων. In any case, see for example Arist. *Mete.* 1.2, and the following line from Thphr. *Metars.* 13: "The wind moves because of its lightness when it tries to reach an upper place, for it is ... compound vapour in which the fine is dominating" (6–7).
- 29 In his *Meteorology*, Aristotle says that the material cause of all meteorological phenomena is the exhalation (πάντων δὴ τούτων αἴτιον ὡς μὲν ὕλη ἢ ἀναθυμίασις, 1.4.342a27–28). On the similarities and differences between Aristotle and Theophrastus on exhalations and their role in explaining winds, see the Introduction, pp. 15–17. Vapors (moist exhalations) sometimes seem to be conceived of as transitional (e.g., air becoming water) and sometimes as mixtures (e.g., of air and water).
- 30 The parentheses are Daiber's; I assume '(parts)' refers to parts of air: perhaps air that contains little moisture and air that is condensing into cloud or water.
- 31 The same or similar language is used in his accounts of the four causes elsewhere: ἡ τίς πρώτον ἐκίνησε (*APo.* 2.11.94a22), ἡ ἀρχὴ τῆς κινήσεως (*PA* 1.1.639b12–13, *Metaph.* A.3.983a30), ἡ ἀρχὴ τῆς μεταβολῆς ἢ πρώτη ἢ τῆς ἡρεμύσεως (*Metaph.* Δ.2.1013a29–30).
- 32 See *GA* 2.1.733b32, *Metaph.* Γ.5.1010a21, Z.7.1032a18, A.3.1070a1. Note that τὸ ὑφ' οὗ (i.e., ὑφ')

power (or ‘capacity’) of the eternally moving bodies” (τὴν τῶν ἀεὶ κινουμένων ... δύναμιν, 339a31–32). Theophrastus it seems would agree, as he often refers to the motion and/or heat of the sun in explaining the winds.<sup>33</sup>

But does Theophrastus intend πῶς ... γίνεται (“how [wind] comes to be”) to refer to efficient causality? I cannot imagine what else it could refer to. In any case, although Aristotle never uses πῶς to describe efficient (or any other) causality in his formal discussions of the four causes, in a passage quoted earlier he does ask, in connection with wind, “how does it come to be, and/i.e. what is its moving (cause)” (γίνεται πῶς, καὶ τί τὸ κινεῖν, *Mete.* 1.13.349a31–33), and he may not be asking about two different causes, but about two aspects of efficient causality with respect to the winds. (In one intriguing passage, he says that people, having set the end [τὸ τέλος], deliberate about “the how and through what” [τὸ πῶς καὶ διὰ τίνων] they will achieve it [*EN* 3.3.1112b15–16].)

Theophrastus does seem to associate πῶς with efficient causality at least once, in his doxography of natural philosophers:<sup>34</sup> “since the principles (i.e. atoms) were unlimited in number, (Democritus and Leucippus) proposed to explain for all attributes and beings by what and how some thing comes to be” (πάντα τὰ πάθη καὶ τὰς οὐσίας ... ὅφ’ οὗ τέ τι γίνεται καὶ πῶς, *Simp. in Phys.* 1.2.184b15 [CAG vol. 9, p. 28.4–31] = 229.20–21 FHS&G = 68A38 DK). Since ὅφ’ οὗ clearly refers to efficient causality, we are again left to wonder what its connection to πῶς is, as πῶς does not seem to describe any other cause. I shall merely speculate that ὅφ’ οὗ and πῶς are corollaries: two aspects of the efficient cause. To return to the statue example: the sculptor himself (ὅφ’ οὗ) and how he works the bronze (πῶς) are two aspects of the same cause.<sup>35</sup>

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οὗ with the article) never appears in the works of Aristotle, though it is widespread in philosophical works after him.

33 See note 26. The moon is appealed to only once (§17), though Theophrastus there raises the possibility that any effect it may seem to have on the winds is coincidental. For more on the sun as an efficient cause of wind, see below pp. 107–109, 177–180.

34 In the context of metaphysics (for lack of a better word), in contrast to physics, Theophrastus uses πῶς to refer to how things are. See *Metaph.* 4a9–13 & 11b27–12a2.

35 There is no reason—apart from a desire to force Aristotle’s four causes onto the opening line of *On Winds* (see note 19, on Bonaventura)—to take πῶς to be the formal cause. Aristotle’s basic description of the formal cause is “the form and the pattern, and this is the account [or ‘definition’] of the what it was to be” (τὸ εἶδος καὶ τὸ παράδειγμα, τοῦτο δ’ ἐστὶν ὁ λόγος ὁ τοῦ τί ᾗν εἶναι, *Phys.* 2.3.194b26–27 = *Metaph.* Δ.2.1013a26–28), and elsewhere “the being [or ‘essence’] and/i.e. the what it was to be” (τὴν οὐσίαν καὶ τὸ τί ᾗν εἶναι, *Metaph.* A.3.983a27–28). Perhaps Aristotle had the formal cause of wind in mind in the passage



C *διὰ τίνος αἰτίας*

In light of the above (if I am right), διὰ τίνος αἰτίας either simply describes or clarifies ἐκ τίνων and πῶς—they are the two causal features explaining the nature of the various winds (Interpretation 2)—or it refers to the complex combinations of material and efficient causes which appear throughout *On Winds* (Interpretation 3). It remains for me to indicate why, *pace* Bonaventura, διὰ τίνος αἰτίας cannot refer to or include final causality.<sup>36</sup> Making this point is important for understanding Theophrastus' (and Aristotle's) approach to explaining meteorological phenomena, and how he views them in the context of the study of nature generally.

Aristotle describes teleology or final causality in the following terms: “as the end, and this is that for the sake of which, as health is (for the sake) of walking” (ὡς τὸ τέλος· τοῦτο δ' ἐστὶν τὸ οὐ ἔνεκα, οἷον τοῦ περιπατεῖν ἢ ὑγίεια, *Phys.* 2.3.194b26–27 = *Metaph.* Δ.2.1013a33–34), and elsewhere “that for the sake of which, and the good” (τὸ οὐ ἔνεκα καὶ τὰγαθόν, *Metaph.* Α.3.983a31–32). Although there is no evidence of final causality operating in Aristotle's *Meteorology*,<sup>37</sup> he *might seem* to be applying it in the course of his defense of final causality in *Phys.* 2.8: “But there is a puzzle (ἀπορίαν): What prevents nature from acting not for the sake of something nor because it is better (μὴ ἔνεκά του ποιεῖν μῆδ' ὅτι βέλτιον), but just as Zeus produces rain, not so that the grain grows, but out of necessity (ἐξ ἀνάγκης)” (198b16–19). This is a controversial passage, at the crux of a scholarly dispute about the scope of final causality in Aristotle: some scholars hold that final causality or teleological explanation is (in the sublunary world) limited to human action and to the nature of living organisms, others that it extends to inanimate processes like rainfall. The former take the rainfall passage in *Phys.* 2.8 to be something

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(quoted above): “*What is wind, and how does it come to be, and what is its moving (cause), and what is the source from which they come?*” (τί τ' ἐστὶν ὁ ἄνεμος, καὶ γίγνεται πῶς, καὶ τί τὸ κινεῖν, καὶ ἡ ἀρχὴ πόθεν αὐτῶν;) (349a31–33). I detect no explicit reference to the formal cause of wind in *On Winds*, however.

36 Bonaventura on διὰ τίνος αἰτίας: *efficientem causam indicant, & finalem* (1593, 63).

37 For an excellent account of whether or to what extent final causality is operative in the *Meteorology*, see Wilson (2013, ch. 5). Wilson argues “that final cause in the *Meteorologica* is restricted to the natural tendencies of simple bodies, and that the heavens' role is only efficient, never final” (2013, 93). I certainly do not deny that for Aristotle simple bodies have natural tendencies, though whether natural places count as causes (and if so, which kind) is disputed. (See e.g. Sorabji 1988, 186–187, and Algra 1995, 195–221.) It is less clear to what extent Theophrastus in *On Winds* relies on the natural tendencies of simple bodies.

Aristotle agrees with (in the case of inanimate processes), the latter as an example of a position he rejects along with the materialist account of living things.<sup>38</sup>

There can be no such controversy in the case of Theophrastus, however, who in his *Metaphysics* is somewhat critical of Aristotle and argues for an even more limited role for teleological explanation in the study of nature, including living things (see 10a5–12a2).<sup>39</sup> It is enough to quote one passage (a long question, to which Theophrastus clearly expects the response to be ‘for the sake of nothing’):

For the sake of what (τίνος ... ἔνεκα) are incursions and refluxes of the sea, or (for the sake) of what are advances and regressions, drynesses and humidities, and in general, changes now in this direction and now in that, and passings-away and comings-to-be through which there occur the alterations and changes in the earth itself as (things) shift now towards this and now towards that place, and not a few other (things) besides, similar to these?<sup>40</sup>

10b1–7; GUTAS trans., slightly revised

More important in the present context, there is no evidence in *On Winds* that Theophrastus employs teleological explanation. And he certainly does not hold that the various winds blow for the sake of the good of humans. In fact, in § 13 he makes it clear that (as far as humans are concerned) nature giveth, and nature taketh away:

But if, then, it is true what others, especially those (living) in Crete, say, that now the winters are longer and more snow falls, presenting as proof

38 For the view that, in Aristotle, processes like rainfall are *not* for the sake of something (the interpretation I accept), see e.g. Gotthelf (2012, 21–24) and Wilson (2013, 94–104), the latter bringing in the *Meteorology* in support of this view. On the opposing side, see e.g. Furley (1985) and Sedley (1991). For a sketch of this controversy, and some of the scholars involved in it, see Gotthelf (2012, 70). For a general account of Aristotle’s conception of final causality and the various interpretations of it, see Gotthelf (2012, ch. 3).

39 See Lennox (2011, ch. 12).

40 τίνος γάρ ἔνεκα αἱ ἔφοδοι καὶ ἀνάρροισι θαλάττης, ἢ τίνος αἱ προχωρήσεις καὶ ἀναχωρήσεις ἢ ἀναξηράνσεις καὶ ὑγρότητες, καὶ ὅλως πρὸς ἄλλοτ’ ἄλλο μεταβολαὶ καὶ φθοραὶ καὶ γενέσεις, ἢ αἱ μὲν ἐν αὐτῇ τῇ γῇ ἀλλοιώσεις καὶ μεταβολαὶ γίνονται πρὸς ἄλλοτ’ ἄλλο μεθισταμένων καὶ ἕτερα δ’ οὐκ ὀλίγα παρόμοια τούτοις; Theophrastus continues: “Furthermore, in the case of animals themselves, some things are, as it were, purposeless, like the breasts in males” etc. (ἔτι δ’ ἐν αὐτοῖς τοῖς ζώοις τὰ μὲν ὥσπερ μάταια, καθά περ τοῖς ἄρρεσιν οἱ μαστοὶ κτλ.) (10b7–8).

the fact that the mountains once had been inhabited and bore crops, both grain and fruit-tree, the land having been planted and cultivated.<sup>41</sup> For there are vast plains among the Idaean mountains and among others, none of which are farmed now because they do not bear (crops). But once, as was said, they were in fact settled, for which reason indeed the island was full of people, as heavy rains occurred at that time, whereas much snow and wintery weather did not occur.<sup>42</sup>

It is also worth quoting, in this context, the following passage in Theophrastus' *Metarsiology* 14:

Neither the thunderbolt nor anything that has been mentioned has its origin in God. For it is not correct (to say) that God should be the cause of disorder in the world; nay, (He is) the cause of its arrangement and order. And that is why we ascribe its arrangement and order to God {mighty and exalted is He!} and the disorder of the world to the nature of the world. And moreover: if thunderbolts originate in God, why do they mostly occur during spring or in high places, but not during winter or summer or in low places?<sup>43</sup>

14.14–20

I turn finally to τεθεώρηται πρότερον ('has been considered earlier'): If we reject the idea that *On Winds* was part of some other work (see above, p. 71), then there are only two serious candidates for what is being referred to here (and they need not be mutually exclusive): Aristotle's account of wind in *Meteorol-*

41 On the protasis without its apodosis (or on the postponement of its apodosis), see below p. 170.

42 The view that nature does not exist for the sake of benefiting humans is likely a part of the context necessary for understanding Theophrastus' *On Piety* (584–585 FHS&G).

43 The parentheses and curly brackets are in Daiber's translation. See his comment on the passage (1992, 280–281), in which he connects it to Theophrastus' conception of the limits of teleology. The chapter continues (14.20–29), presenting further arguments against god as a cause of thunderbolts. There is a superb discussion of this passage in Mansfeld (1992, 317–324). He argues that this chapter is out of place, having originally been the final chapter of the second book (and so the conclusion to the entire treatise). I would add that (in my view) it is highly unlikely that Theophrastus, in the original, simply asserted that god is the cause of the order and arrangement of the world. Rather, it is much more likely that he referred to what people ascribe to god (as here is done in the very next sentence, though in the first person plural). Note the language of Thphr. *Metaph.* 11b8 (ὅσοι τῷ θεῷ τὴν αἰτίαν ἀνάπτουσιν, "those who attribute the cause to god"). Cf. Mansfeld (1992, 322–323).

ogy 1.13 & 2.4–6, and Theophrastus' account in his *Metars.* 13. Most scholars favor the latter: see e.g. Steinmetz (1964, 25),<sup>44</sup> Daiber (1992, 286), and Fortenbaugh et al. (1992, 1: 280–283); but cf. Coutant & Eichenlaub (1975, 66), who refer simply to Aristotle, *Mete.* 1.13 & 2.4–6.<sup>45</sup> I believe the discussion of wind in his *Metarsiology* (of which, in my view, the extant Syriac and Arabic translations are clearly epitomes) is primarily what Theophrastus has in mind here, though Peripatetic discussion of wind generally forms the background for *On Winds*.

ἔτι δ' ἐκάστοις αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα κατὰ λόγον ἀκολουθεῖ, πειρᾶσθαι χρὴ λέγειν, οἷσπερ σχεδὸν διαφέρει ἀλλήλων.

*On Winds* begins “The nature of (all) the winds (generally)—out of what and how and through what causes it (sc. wind) comes to be—has been considered earlier ....” But (δ', answering the μέν in the opening line) Theophrastus in this work turns to discussing each of the particular winds (or the major ones, at any rate). As indicated earlier, investigating these winds will of course require drawing on the previous discussion of the causes of wind generally; but the focus will now be on the capacities and attributes (more on these shortly) of the particular winds. The present discussion, combined with the previous one, was likely thought to provide a comprehensive or complete account of the winds.<sup>46</sup> (As is clear, however, from the lacunose and corrupt end of the treatise that has come down to us—discussed in the commentary on § 62—the *On Winds* is not complete.)

The winds that receive the most attention are Boreas and Notos especially (the north and south winds respectively), and (less so) Zephyrus (the west wind), as well as the Etesians (i.e. the Annuals, a north wind that begins to

44 Steinmetz can posit *both* that *On Winds* is part of a larger work (Theophrastus' *Physics*) and that τεθεώρηται πρότερον refers to Theophrastus' *Metarsiology*, because he maintains that the latter is also part of the *Physics* (its seventh and eighth books). See Steinmetz (1964, 12, 25, 56).

45 Coutant & Eichenlaub seem not to be aware of Theophrastus' *Metarsiology*, though it was first published decades earlier (see Bergsträsser 1918). Wood, who understandably did not know of this work, takes τεθεώρηται πρότερον to refer to Arist. *Mete.* 1.13 & 2.4, “and, if it is genuine, to de Mundo, cap. iv” (1894, 10).

46 Of course, this is not to say Theophrastus' *On Winds* is the last Peripatetic word on the subject. For instance, much of Book 26 of the Aristotelian *Problems* takes *On Winds* as its springboard. (See Mayhew 2015 for more on the relationship between *On Winds* and *Pr.* 26.)

blow every summer). Much less attention is given, and fairly late in the work, to Caecias (§§ 37 & 39), and to Argestes, Lips, and Eurys (§§ 51–53 & 61–62). (For the directions of these last five winds, see the windrose on p. 20.)

The wording (αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα) implies that αἱ δυνάμεις are one type of the more general class τὰ παρακολουθοῦντα, so I begin with a discussion of the latter. Παρακολουθέω means ‘follow or attend closely’, and so τὰ παρακολουθοῦντα refers to ‘the things that follow closely’ or (as I translate it in the present context) ‘the accompanying attributes’. I could arguably have chosen a better way of translating this—e.g. ‘consequential attributes’ (Ross 1949, 670) or ‘attendant attributes’ (White 2002, 23)—but I wanted my translation to make clear the connection to ἀκολουθεῖ (‘follows’ or ‘accompanies’) in the same line: “the accompanying attributes accompany (each wind) according to reason.” (Admittedly, this comes at the price of slightly obscuring the difference between the technical compound and the simple verb.) Now one might argue that ‘following’ is especially what Theophrastus has in mind: it is not simply what accompanies a wind, but what follows it, i.e. the regular *effect* of the blowing of a wind. But it should become clear that τὰ παρακολουθοῦντα includes more than such effects.

LSJ (s.v. παρακολουθέω II 4) provides a good, succinct account of the use of τὰ παρακολουθοῦντα by Peripatetics and later philosophers: “of a logical property, τὸ αἰεὶ παρακολουθεῖν Arist. *Top.* 131b9; also of the genus, ib.125b28, cf. 123a19; of notions inseparably connected one with another,<sup>47</sup> Id. *Cat.* 8a33, *Metaph.* 1054a14; of cause and effect, Id. *APo.* 99a17 ....” ‘Notions inseparably connected’ (including αἱ δυνάμεις) perhaps best captures the term: attributes that always accompany some entity or phenomenon, including but not limited to essential attributes. Aristotle in the *Posterior Analytics*, discussing τὸ παρακολουθεῖν, gives the following example: “shedding leaves simultaneously accompanies the vine” (τὸ φυλλορροεῖν ἅμα ἀκολουθεῖ τῇ ἀμπέλῳ, 2.18.99a23). In *CP* 6.10.3, Theophrastus writes “Generally, among the particular (characteristics) and among the accompanying attributes the following would seem to agree” (ὅλως δὲ ἐν τοῖς καθ’ ἕκαστα καὶ ἐν τοῖς παρακολουθοῦσι καὶ τὰ τοιαῦτα δόξειεν ἂν συμφωνεῖν)—i.e. agree with the preceding discussion of the aversion of plants to salt. He goes on to list some of these (which I assume includes relevant accompanying attributes), e.g. that the internal heat of the plant draws into itself what is lightest and most nutritious, but not salt, which is naturally heavy and not nutritious.

47 Cf. *BDAG* s.v. παρακολουθέω [B]: “to be connected or inseparable, of attributes, properties, notions etc.”

Now the important term δύναμις can be tricky to translate. With an occasional exception, I try to render it ‘capacity’ throughout, as I think that captures the two general meanings of the term (in *On Winds*): the active power of a particular wind (or of the sun, say), as well as its (not necessarily actualized) potential. To get a sense of what Theophrastus has in mind, it is useful to consider his list of πάθη καὶ δυνάμεις in *HP* 1.5.4–5:

These (characteristic differentiae or characteristics) then would seem to be that out of which comes the composition (of the plant). But those which belong to the conditions and capacities are such as hardness, softness, viscosity, brittleness, porousness, lightness, heaviness, and however many other such (attributes). For the willow even when green is straight-away light, as is the cork-oak, but boxwood and ebony are not even (light) when dried. And some (woods) can be split, such as that of the silver-fir, while others are very easily breakable, such as that of the olive tree. And some are without knots, such as the (wood) of the elder, while others have knots, such as the (wood) of the fir and the silver-fir.

Now one must also ascribe such (conditions and capacities) to the nature (of the plant): for the silver-fir is easily split owing to its having a straight grain, while the olive tree is easily breakable through being crooked and hard. But lime wood and some others are easily bent because their stickiness (i.e. sap) has moisture. Boxwood and ebony are heavy because they are compact, while oak (is heavy) because it is earthy. Now in like manner all the other (attributes) as well are in some way reduced to the nature (of the plant).<sup>48</sup>

HORT trans. revised

It seems that δυνάμεις is a broader term in *On Winds*, covering what are called πάθη καὶ δυνάμεις in the *History of Plants*: both potential conditions or qualities and active powers. In any case, whatever disanalogies there might be between

48 αὐται μὲν δὴ δόξαιεν ἂν ἐξ ὧν ἡ σύνθεσις. αἱ δὲ κατὰ τὰ πάθη καὶ τὰς δυνάμεις οἷον σκληρότης μαλακότης γλισχρότης κραυρότης (πυκνότης) μανότης κουφότης βαρύτης καὶ ὅσα ἄλλα τοιαῦτα· ἡ μὲν γὰρ ἰτέα καὶ χλωρόν εὐθὺ κοῦφον, ὥσπερ ὁ φελλός, ἡ δὲ πύξος καὶ ἡ ἔβενος οὐδὲ αὐανθέντα. καὶ τὰ μὲν σχίζεται, καθάπερ τὰ τῆς ἐλάτης, τὰ δὲ εὐθραυστα μᾶλλον, οἷον τὰ τῆς ἐλάας. καὶ τὰ μὲν ἄοχα, οἷον τὰ τῆς ἀκτῆς. τὰ δὲ ὀζώδη, οἷον τὰ τῆς πεύκης καὶ ἐλάτης.

δεῖ δὲ καὶ τὰς τοιαύτας ὑπολαμβάνειν τῆς φύσεως. εὐσχιστον μὲν γὰρ ἡ ἐλάτη τῷ εὐθυπορεῖν, εὐθραυστον δὲ ἡ ἐλάα διὰ τὸ σκολιὸν καὶ σκληρόν. εὐκαμπτον δὲ ἡ φίλυρα καὶ ὅσα ἄλλα διὰ τὸ γλίσχραν ἔχειν τὴν ὑγρότητα. βαρὺ δὲ ἡ μὲν πύξος καὶ ἡ ἔβενος ὅτι πυκνά, ἡ δὲ δρυς ὅτι γεώδες. ὡσαύτως δὲ καὶ τὰ ἄλλα πάντα πρὸς τὴν φύσιν πῶς ἀνάγεται.

the two works (and between δυνάμεις as it applies to plants and to winds), what count as δυνάμεις in the case of winds will, as in the case of plants, be reducible to the nature of that wind (for instance, to whether it is hot or cold, moist or dry).

Much of the remainder of § 1 is in effect a list of the “accompanying attributes” (including capacities), referred to collectively as differentiae or differences (αἱ διαφοραί): great or small,<sup>49</sup> cold or hot, stormy or calm, rainy or clear, frequent or infrequent, seasonal or not seasonal, continuous or intermittent. Theophrastus does not make clear which of these are δυνάμεις, and which are τὰ παρακολουθοῦντα that do not count as δυνάμεις. At the end of § 1 he adds that in general, the various winds affect the earth, the sea, and the sky, including plants and animals. I assume such effects would fall under τὰ παρακολουθοῦντα. (More on all of this in due course.)

A major purpose of Peripatetic inquiry into the winds is to demonstrate rationally, in the case of those attributes of winds that cannot be directly experienced perceptually, that a particular attribute is in fact connected by nature to a particular kind of wind. Further, a rational account should be given for every attribute: If a wind is hot, why is it hot? If it tends to blow in the afternoon, why does it do so? Hence κατὰ λόγον ἀκολουθεῖ.<sup>50</sup> It must also be investigated whether some purported capacities or accompanying attributes are in fact mere coincidences—e.g. that around Macedonia the Etesians rise and the alternating breezes blow at the same time (§ 31), or whether shooting stars are in fact signs of winds (§ 36). (Theophrastus argues that the former conjunction is a coincidence, the latter is not.)

Theophrastus uses the expression κατὰ λόγον elsewhere in *On Winds* five times: “there is a *logical* order as it were for each during which (times) they (sc. Boreas and Notos) blow most frequently” (§ 10); “the stoppages of the winds occur *logically*” (§ 18); “For it is *according to reason* for this very breeze to come to be” (§ 24); “the repayment, that is so to speak the *proportional* counter-flow, occurs naturally” (§ 53);<sup>51</sup> “It is indeed *logical*, then, that when they encounter each other before blowing themselves out completely, they should produce a storm” (§ 54). In some of these cases, Theophrastus is arguably using κατὰ λόγον to describe something happening according to some proportion or regularity rather than asserting that the occurrence is logical or according to reason (as in

49 I.e. powerful or weak. More on this pair of capacities shortly.

50 Cf. Arist. *GA* 4.10.778a1: κατὰ λόγον γὰρ ἀκολουθεῖν κτλ.

51 One could alternatively translate this “... the counter-flow occurs naturally ... *according to reason* ...”

§ 53); but separating the two meanings is not always possible (or important)—in fact, these two renderings arguably do not represent different meanings in any strict sense. In the present case, it is the fact that the attributes of each wind accompany them according to reason (i.e. with intelligible regularity) that we can and should attempt to explain the features by which the various winds differ from each other. Theophrastus uses *κατὰ λόγον* over fifty times in his other works, e.g. “with all these (trees) as well (the growth of) the stem follows logically” (*HP* 1.2.2); and, two kinds of pine tree (*πέυκη καὶ πίτυς*) “produce their fruit after (the setting of the) Pleiades according to reason” (*τοὺς δὲ καρποὺς ἀποδιδόασι μετὰ Πλειάδα κατὰ λόγον*) (*HP* 3.4.5).<sup>52</sup>

Re. *πειράσθαι χρή λέγειν*: Forms of *πειράομαι* combined with a sense of necessity (‘necessary to attempt’ or ‘should attempt’) appear often in Theophrastus, especially to introduce a discussion of particulars in contrast to a general class (here, the various winds in contrast to the nature of wind *per se*). The use of *χρή* in this context, however, is not common, with only two other instances: “it is necessary to attempt to distinguish this” (*τοῦτο χρή πειράσθαι διαίρειν*), i.e., which varieties of grapes are appropriate for which regions (*CP* 3.11.1); and, “it is necessary to attempt to distinguish generally” (*χρή δὲ πειράσθαι καθόλου διαίρειν*) taste-flavor and odor-flavor,<sup>53</sup> for each case (*ἐκάτερος*) (*CP* 6.16.8). Much more common are formulations using the verbal-adjective *πειρατέον*, usually with *εἰπεῖν* (but sometimes with *λέγειν*, *θεωρεῖν*, *διορίζειν*, etc.).<sup>54</sup> There is one occurrence in *On Winds*, the last line of § 31: “Therefore, one must attempt in every case to determine the coincidences” (*τὰ μὲν οὖν συμπτώματα πειρατέον ἅπασι διαίρειν*). Here is one of the twenty-seven occurrences in the botanical works: “one must attempt to speak about each” (*πειρατέον περὶ ἐκάστον λέγειν*) part of the plant (*HP* 1.1.9). Perhaps Theophrastus regards this aspect of the inquiry into natural phenomena to be particularly difficult. One does not simply explain the attributes of each particular wind or tree, etc., one *attempts* or *endeavors* to do so.

The relative clause at the end of this passage states that these attributes (*οἷσπερ* refers to *αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα*) are the very ones by which, by and large (roughly, more or less, *σχεδόν*) the various winds are distinguished. The *σχεδόν* was included to indicate, as Theophrastus often does,

52 Cf. [Thphr.] *Sign.* 14.90–92: “And snuff on lamp wicks, if (the winds) are from the south, signal rain, and they also signal wind, according to reason, when they have quantity and strength” (*καὶ οἱ μύκητες ἐάν νότια ἢ ὕδωρ σημαίνουσι, σημαίνουσι δὲ καὶ ἄνεμον κατὰ λόγον ὡς ἂν ἔχωσι πλήθους καὶ μεγέθους*).

53 This formulation comes from Einarson and Link (1990, 405).

54 I noted three instances of *δεῖ* in such formulations: *HP* 6.1.4, *CP* 1.10.2, *CP* 4.7.1.



that when making general statements about particular things or phenomena (here, the different winds), and especially about their causes, the precision of the statement should be qualified (at least to the extent of recognizing that there will be exceptions). In *CP* 5.12.4, for example, discussing the death of trees from cold wind, Theophrastus makes explicit what he means by *σχεδόν* in such contexts: “These, then, are the things that happen; and the cause, roughly (*σχεδόν*)—at any rate, to speak generally—is evident: for the hot, being driven out by the cold, also takes the moist with it, such that (the tree) is dried out by evaporation.”<sup>55</sup> Theophrastus had just described cold winds blowing in Greece, from the west and from the east, during the forty days around the winter solstice. These (τὰ ... γινόμενα) are self-evident facts. He subtly contrasts (μὲν ... δ’) these facts with their causes, which are *by and large*—i.e. in general, leaving aside certain details—evident. The appearance of *σχεδόν* in the opening chapter of *On Winds* may be connected to the point I made earlier about the difficulty of inquiring into particular natural phenomena. The word also appears in §§ 11, 28, 44, & 59, and in every case it concerns the attempt to understand the cause of an attribute of a particular kind of wind.<sup>56</sup> One example should suffice (from § 11): “why (the Etesians) blow in this season, how (they do) in this way, and why they come to an end when the day comes to an end and do not blow at night, is explained by and large (*σχεδόν*) in terms of these causes” etc. In the opening chapter of the *Meteorology*, Aristotle says that the phenomena which meteorology studies “happen according to nature, but with more disorder” than is found in the heavenly bodies<sup>57</sup> (1.1.338a25–b21). Theophrastus no doubt agrees, and this certainly in part accounts for the relative lack of precision in his study of the various winds.

There is no need to accept Turnebus’ emendation of the manuscripts’ διαφέρει to διαφέρουσιν (accepted by most editors since, but not by Gigon). Neuter plural subjects regularly take singular verbs, and οἷσπερ (which refers to αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα) must here be neuter and not masculine. Moreover, it is arguably best to translate διαφέρει with an implied singular subject: ‘each differs’.

55 τὰ μὲν οὖν γινόμενα ταῦτ’ ἐστίν, ἢ δ’ αἰτία σχεδὸν ὥς καθόλου γε εἰπεῖν φανερά· τὸ γὰρ θερμὸν ἐξελαυνόμενον ὑπὸ τοῦ ψύχους συνεξάγει καὶ τὸ ὑγρὸν ὥστε διαπνεῖσθαι.

56 The use of *σχεδόν* in *On Winds* is close to—in some cases perhaps indistinguishable from—*ἀπλῶς* (see below p. 89–90). Consider the opening line of § 59: “Basically (*ἀπλῶς*), such (phenomena) have fairly (*σχεδόν*) obvious causes.”

57 λοιπὸν δ’ ἐστὶ μέρος τῆς μεθόδου ταύτης ἔτι θεωρητέον, ὃ πάντες οἱ πρότεροι μετεωρολογίαν ἐκάλουν· ταῦτα δ’ ἐστὶν ὅσα συμβαίνει κατὰ φύσιν μὲν, ἀτακτοτέραν μὲντοι τῆς τοῦ πρώτου στοιχείου τῶν σωμάτων ...

αἱ γὰρ διαφοραὶ περὶ ταῦτα καὶ ἐν τούτοις·

Theophrastus here refers to αἱ δυνάμεις καὶ τὰ παρακολουθοῦντα collectively as αἱ διαφοραί, the differentiae, as these attributes will be the defining attributes of the various winds.

I do not know whether Theophrastus intended περὶ ταῦτα to refer to τὰ παρακολουθοῦντα and ἐν τούτοις to αἱ δυνάμεις, for as it will become clear in discussing the list of διαφοραί that follows, it is not always easy to determine which is a capacity and which merely an accompanying attribute—but neither is that so important.

This line and the list of differentiae that follows it are comparable to the opening of Aristotle's *GA* 5: "It is now necessary to investigate the qualities (or 'attributes') by which the parts of animals differ. I mean such attributes of the parts as blueness and blackness of eyes, height and depth of voice, and also differences in color of hairs or feathers" (1.778a16–20).<sup>58</sup>

οἶον μέγεθος, μικρότης, ψυχρότης, θερμότης,

The first items on the list of differentiae are clearly capacities (δυνάμεις), i.e. not simply accompanying attributes. They are two sets of opposites (called τὰ ἐναντία in § 2): greatness and smallness, and cold and heat. Each pair, however, represents a sliding scale: of power and of temperature. It is instructive to compare this list with the first items listed in § 2 (which presumably are meant to be the same). Further along that list becomes condensed, but the first two pairs are the same: "greatness and smallness, heat and cold" (μεγέθους καὶ σμικρότητος, καὶ ψυχρότητος καὶ θερμότητος). Cf. Theophrastus' *Metars.* 13.22–24, which proceeds in a slightly different order: "*Strong* winds occur, when many vapors ascend. *Continuous* and *permanent* winds exist, when vapors ascend permanently. *Hot* and *cold* winds result from two causes ..." etc.

Re. μέγεθος, μικρότης: I recognize the awkwardness of translating these 'greatness and smallness' (and related terms 'great' and 'small' etc.), where in normal English parlance we would tend to refer to the strength and weakness of winds. (Outside of the lists of capacities in §§ 1–2, I am somewhat freer in how I translate them. E.g. in § 2, I translate the plural τὰ μεγέθη 'their magnitudes'.) Woods translates μέγεθος, μικρότης 'greater or less volume', Coutant with the one word

58 περὶ δὲ τῶν παθημάτων οἷς διαφέρουσι τὰ μόρια τῶν ζώων θεωρητέον νῦν. λέγω δὲ τὰ τοιαῦτα παθήματα τῶν μορίων ὅσον γλαυκότητα ὀμμάτων καὶ μελανίαν, καὶ φωνῆς ὀξύτητα καὶ βαρύτητα, καὶ χρώματος [ἢ σώματος] καὶ τριχῶν ἢ πτερῶν διαφοράς. (ἢ σώματος is missing from the 9th century Arabic translation, and was bracketed by Bekker.)

‘force’. I think Coutant is on the right track, in that μέγεθος usually refers to the power of wind—rather than to its size or the quantity of air it contains<sup>59</sup>—and especially to its capacity to move air or clouds. This is clear from the use of μέγεθος and related terms throughout *On Winds* (see §§ 2, 4–8, 12, 28, 32, 36, 42, 46, 48–50). For example (from § 7): “because of its (i.e. Boreas’) power it moves a lot of air” (διὰ μὲν τὸ μέγεθος πολὺν ἄερα κινεῖ). In discussing the various winds, Theophrastus does not directly refer to their smallness (μικρότης), though it is occasionally implied, as in this passage (also from § 7): “the beginning being from a smaller or greater origin also makes a difference (ἀπ’ ἐλάττονος ἢ μείζονος ἀρχῆς). For when (the origin) is small (the wind) is clear, but when great it is cloudy and rainy because it thrusts more air together.”<sup>60</sup>

Ms. B has καὶ μικρότης, a reading accepted in the Aldine and by all other editors until Wimmer. The adoption of this variation is unnecessary, however, and would only be worth considering if ms. B also included a καὶ between ψυχρότης and θερμότης (as in the parallel list in § 2). Note that the list in *HP* 1.4.1 (see note 60) reads μέγεθος καὶ μικρότης, σκληρότης μαλακότης—but I would not emend our text based on that. That having been said, I think it is quite possible that each pair of opposite attributes in these lists were ‘originally’ separated by a καί.

The meanings of ψυχρότης and θερμότης (cold and heat) are clear, and Theophrastus’ references to these attributes in explaining the winds are ubiquitous. They are perhaps his most fundamental concepts in explaining the differences between the winds. For instance, after making it clear in § 2 that “a particular location underlies each (wind), and this (location) belongs as it were to its essence,” he begins § 3 as follows: “But the cold and heat would seem to be most manifest coming to be on account of their locations: for the (locations) to the north are cold, whereas those to the south are warm.”

ἀπλῶς τὸ χειμερινὸν ἢ εὐδαινὸν καὶ ὑέτιον ἢ αἴθριον·

The next two sets of attributes are introduced by ἀπλῶς. This word occurs eight times in *On Winds* (§§ 1 [bis], 2, 4, 19 [bis], 29, 59), in three cases with εἰπεῖν (§§ 1, 2, 4). Its meaning is ‘simply’, ‘basically’, ‘generally’, ‘loosely’, ‘without qualification’. In ἀπλῶς τὸ χειμερινὸν ἢ εὐδαινὸν κτλ., Theophrastus seems to

59 There is, however, a connection between the amount of air and its power: see § 7 and cf. Thphr. *Metars.* 13.22.

60 In *HP* 1.4.1., in his list of the differentiae (αἱ διαφοραὶ) among plants (and their parts), Theophrastus begins with μέγεθος καὶ μικρότης, though he there is clearly referring to size and not power.

be saying that these next differentiae (stormy or calm, rainy or clear) cannot be defined or employed with the same precision as the previous four. Once again, a comparison to *HP* 1.4.1 is instructive: After referring to such differentiae between plants and their parts in size (large or small) and in texture (smooth or rough), he adds: “basically having a beautiful shape or an ugly shape, and further too bearing fine fruit or bad fruit” (ἀπλῶς εὐμορφία καὶ δυσμορφία τις, ἔτι δὲ καὶ καλλικαρπία καὶ κακοκαρπία). Whether the shape of a plant is beautiful or its fruit tasty are not attributes that can be identified and applied with the same precision (and perhaps objectivity) as its size and texture.

Before turning to the attributes themselves, I must take a stand on the relationship between these four attributes and the previous four. And this issue might seem to be connected to whether one ought to accept the suggestion of Schneider (1818, 4: 680), i.e. (καὶ) ἀπλῶς κτλ. One way of taking τὸ χειμερινὸν ἢ εὐδαιρινὸν καὶ ὑέτιον ἢ αἰθρινὸν is as a parenthetical set of attributes reducible to the previous four: so, “greatness, smallness, cold, heat (basically whether stormy or calm and rainy or clear)” — in which case Schneider’s emendation must be rejected. This interpretation gets some support from the fact that there is nothing corresponding to “stormy or calm and rainy or clear” in the list of attributes in § 2, as that list proceeds directly to καὶ πλήθους καὶ ὀλιγότητος. In the end, however, I think such a reading would make sense only if the initial list included something like ‘moistness, dryness’ (cf. *CP* 2.7.1: αἱ καθ’ ἕκαστον διαιρέσεις οἶον ἢ θερμότης καὶ ἢ ψυχρότης καὶ ἢ ξηρότης καὶ ἢ ὑγρότης); for one could arguably reduce a wind’s being stormy or rainy, or calm and clear, to its power, temperature, and (for lack of a better word) humidity. But such a reduction to power and temperature alone does not make sense. So however derivative they are, I take “whether stormy or calm and rainy or clear” to be additional differentiating characteristics (and likely capacities) — the latter pair perhaps standing in, so to speak, for the more basic, but essential, moistness and dryness. So there is nothing inherently objectionable to the addition of καί, as it does make the text read more smoothly. But as the line from *HP* 1.4.1 just quoted makes clear, Theophrastus did not think items in a list preceded by ἀπλῶς required a καί.

As one would expect, there are abundant discussions in *On Winds* of the connections between various winds and such meteorological phenomena as clouds, rain, storms, and clear weather. (On clouds, see esp. §§ 7–8 & 60–62; on rain, see esp. §§ 4–5; on storms, see esp. §§ 42 & 54; on clear weather, see esp. §§ 6–8.) And whether a wind produces clear weather or has a tendency to bring many clouds or cause storms are distinguishing characteristics of the different winds, which is why these features are included at the outset among the list of differentiae.

ἔτι δὲ τὸ πολλάκις ἢ ὀλιγάκις, καθ' ὥραν ἢ τὸ [μὴ] αἰεὶ πνεῖν, καὶ συνεχεῖς καὶ ὁμαλεῖς ἢ διαλείποντας καὶ ἀνωμαλεῖς·

I think it possible (if not likely) that at this point (perhaps signaled by ἔτι δέ) we move from αἰ δυνάμεις to the other παρακολουθοῦντα: attributes that accompany certain winds, without being essential capacities 'in' the winds themselves, so to speak. These are: the frequency of the wind; whether or not it is seasonal; whether or not it is continuous and regular. Alternatively, the corresponding part of the list in § 2 (in fact the rest of it) is: καὶ πλήθους καὶ ὀλιγότητος, καὶ τῶν ἄλλων τῶν πλείστων. One might want to argue that τῶν ἄλλων τῶν πλείστων refers to τὰ παρακολουθοῦντα that are not δυνάμεις, and so classify τὸ πολλάκις ἢ ὀλιγάκις (corresponding to πλήθους καὶ ὀλιγότητος)<sup>61</sup> as δυνάμεις as well.

I think a full explanation of τὸ πολλάκις ἢ ὀλιγάκις first requires an attempt to make sense of καθ' ὥραν ἢ τὸ μὴ αἰεὶ πνεῖν, which is the reading of (most of) the manuscripts.<sup>62</sup> Taking it as is, it means "according to season or not always blowing." Now if τὸ μὴ αἰεὶ πνεῖν were meant to explain καθ' ὥραν, with the ἢ indicating that the latter is another way of describing the former, there would be no problem: "according to season or [= i.e.] not always blowing (throughout the year)." But given that this passage is preceded by a pair of opposite attributes (separated by ἢ) and followed by one or two sets of opposite attributes (separated by ἢ), I think καθ' ὥραν ἢ τὸ μὴ αἰεὶ πνεῖν too must represent a pair of opposite attributes. But then "according to season or not always blowing" is problematic, as these are hardly opposites. One can improve the situation somewhat by taking the second half to mean "not always blowing (according to season)"; but then αἰεὶ is out of place, as "not blowing (according to season)" makes much more sense as the contrary of "according to season."<sup>63</sup> So there is a case for bracketing αἰεὶ. I think it is slightly preferable, however, to bracket μὴ, which yields: "according to season or always blowing,"<sup>64</sup> which makes perfect sense.<sup>65</sup> Whichever word does not belong there (αἰεὶ or μὴ), its

61 On πλήθους καὶ ὀλιγότητος as equivalent to πολλάκις ἢ ὀλιγάκις, see below p. 101.

62 The one variant (μὴν V<sup>a</sup>) perhaps represents an (unsuccessful) attempt to avoid the possible problem (as I see it) caused by μὴ (or αἰεὶ).

63 Cf. "their occurrence season by season, or not at all seasons," the translation of Wood. I am not quite sure what to make of Coutant's "seasonal occurrence or failure." Cf. Turnebus' *stato tempore aut incerta vice repetitio* (1600, 2: 41).

64 Cf. Thphr. *Metars.* 13.23: "permanent winds."

65 It is worth mentioning here the only other occurrence of μὴ αἰεὶ in Theophrastus: In *HP* 1.9.5, he is discussing the evergreens (τὰ αἰεφυλλα), including those plants that "are not evergreens by nature but through their location" (οὐκ ὄντα τῇ φύσει παρὰ τὸν τόπον ἐστίν

appearance may well be the result of a confused scribe or scholar who thought he was correcting the text.

The next interpretive issue in this passage is whether τὸ πολλάκις ἢ ὀλιγάκις, καθ' ὥραν ἢ τὸ [μὴ] ἀεὶ πνεῖν describes one set of opposites, or two. Either Theophrastus is saying: (1) 'whether the wind blows frequently or infrequently, i.e. seasonally or all year' (in which case these items, oddly for this work, are presented chiastically); or (2) 'whether the wind blows frequently or infrequently' and 'whether the wind blows seasonally or all year.' *On Winds* itself is not much help in settling this issue. One bit of support for (1) is the more condensed list in § 2: it seems to leave out καθ' ὥραν ἢ τὸ ἀεὶ πνεῖν, which makes sense if that is subsumed under τὸ πολλάκις ἢ ὀλιγάκις. Nevertheless, I think (2) is the most natural interpretation, in which case 'frequently or infrequently' refers to how often the wind blows during the day (all the time, or at certain times only), regardless of whether that wind is seasonal. Here are some examples of such attributes: Boreas and Notos "blow most of the time," i.e. throughout much of the year (§ 2, but see § 10 for details); there is an autumnal Zephyrus (§ 42); certain winds blow at dawn in some locations, in the afternoon in others (§ 47); Notos is accustomed to blow at the time of the Dog-star, i.e. in the summer (§ 48); and, the "nighttime Boreas winds fall away after three days" (§ 49).

The next issue, similar to last, is whether "continuous and regular, or intermittent and irregular" refers to two pairs of (related) opposites, or one pair: If the latter, the meaning is 'continuous (i.e. regular) or intermittent (i.e. irregular)'; if the former, then there are two pairs, 'continuous or intermittent' and 'regular or irregular'. Settling this issue requires looking at how Theophrastus uses such concepts throughout *On Winds*.

In § 4, Theophrastus speaks of whether a wind is "wave-like or waveless (i.e. gusty or steady) and dense (or not) and continuous (or not) and irregular or regular" (τὸ κυματῶδες καὶ ἄκυμον καὶ πυκνὸν καὶ συνεχές καὶ ἀνωμαλές καὶ ὁμαλόν).<sup>66</sup> In § 6, he writes that Notos, in certain locations, "produces more of what

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ἀειφυλλά), e.g. certain plants in parts of Egypt (in Memphis and the Elephantine). He then mentions some plants that are almost evergreens: "in the (Nile) Delta, (some plants) for a very short time have an interval of not always (i.e. not continuously) producing leaves" (ἐν τῷ Δέλτῳ μικρὸν πάνυ χρόνον διαλείπει τοῦ μὴ ἀεὶ βλαστάνειν). It is no surprise that μὴ ἀεὶ is contrasted with what is ἀεὶ(φυλλά), and not with plants that produce leaves seasonally. Cf. Arist. *HA* 8(9).8.614a5: describing the peculiar aggressive behavior in male partridges, Aristotle says "this does not happen always, but according to (or 'at') a certain season of the year" (γίνεται δὲ τοῦτο οὐκ ἀεὶ, ἀλλὰ καθ' ὥραν τινὰ τοῦ ἔτους).

66 I defend this rendering of the text (and especially twice inserting 'or not') in the commentary ad loc. (see p. 124).

is dense and waveless (i.e. steady) and continuous and regular” (τὸ πυκνὸν καὶ ἄκυμον καὶ συνεχὲς καὶ ὁμαλές ... ὁ νότος ποιεῖ μᾶλλον). In §12, the cause of the irregularity (ἀνωμαλίας) of the Etesians is the irregularity of the melting snow, and he speaks of such winds sometimes blowing powerful and continuous (μεγάλοι καὶ συνεχεῖς), sometimes weaker and intermittent (ἐλάττους καὶ διαλείποντες). In §19, he contrasts air coming out of a source all at once (ἄθρόως) and continuous (συνεχής) with air coming out “little by little” (κατὰ μικρόν; cf. §35, (οὐ) συνεχῶς ἀλλὰ κατὰ μικρόν).

What does this add up to? The pair συνεχεῖς and διαλείποντας (continuous and intermittent) refers to whether the wind blows continuously or (so to speak) in waves. If a wind blows in waves (i.e. intermittently), it can do so according to a regular pattern or irregularly. And this brings us to ὁμαλεῖς and ἀνωμαλεῖς (which can also mean ‘even’ and ‘uneven’, though ‘regular’ and ‘irregular’ work better in the context of *On Winds*). I take it that ὁμαλεῖς and ἀνωμαλεῖς refer to whether a particular wind has its other characteristics (e.g. strength, density, continuity) consistently or whether these change (and especially in an unpredictable way).

Note that there is no overlap between “continuous and regular or intermittent and irregular” and the previous pair of opposites (“according to season or whether always blowing”): a wind can be continuous or intermittent, and regular or irregular, whether it blows seasonally or all year long, and irrespective of when it blows during the day.

καὶ ὅλως ἃ συμβαίνει περὶ τὸν οὐρανὸν ἢ περὶ τὸν ἀέρα καὶ τὴν γῆν καὶ τὴν θάλατταν διὰ τὴν πνοήν.

This line continues the list of accompanying attributes that are not actual capacities of the winds. These would include, in general, anything the winds consistently cause to happen, which one investigating winds should attempt to explain κατὰ λόγον.

The main (or first) interpretive difficulty is sorting out the difference between (and what are meant by) περὶ τὸν οὐρανὸν and περὶ τὸν ἀέρα.<sup>67</sup> I think it most likely that περὶ τὸν ἀέρα refers to the air around us (in contact with the earth and sea, and so grouped with them) and so to what we can perceive about the air around us directly (e.g. its humidity and temperature). It likely also refers to such regular wind-caused occurrences in the sky as the formation of clouds and rains and storms and clear weather etc. Examples of such phenomena are ubiquitous in this treatise.

67 Coutant translates these “in the sky” and “in the air.”

Of course, *περὶ τὸν οὐρανόν* cannot here refer to the sun or other such celestial objects; for although the sun has a major influence on the winds, nothing happens to it or any other celestial object because of the winds. So I assume that what Theophrastus has in mind by *τὸν οὐρανόν* is what he elsewhere calls the upper air—the region of the sky (the layer of air) that is in contact with the celestial realm.<sup>68</sup> There is a loose sense in which the winds have an effect on phenomena in this realm. This is from § 36:

And the following too are common to very many (winds), for instance, (the) appearance and (the) fading away or breaking up of (shooting) stars and haloes and parhelia and any other such thing. For the upper air reveals beforehand, by what happens to it, the nature of the winds.<sup>69</sup>

See also Aristotle, *Mete.* 1.4 & 1.7, on shooting stars, comets, and other such phenomena.

Next, what did Theophrastus have in mind by the effects of winds on the earth—that is, the earthen part of the surface of the earth, so to speak (as opposed to the sea, or the air around the earth)? I think that in general he is referring simply to any relevant effects brought about by wind-caused meteorological phenomena, and so storms, snowfall, flooding, drought, etc. But he may also be particularly interested in what happens to plants and animals (which he refers to in the next line, discussed below).

As for the effects of wind on the sea, see §§ 53–54, on waves, waterspouts, and the destruction of ships (and cf. Thphr. *Metars.* 13.33–54). In his *Meteorology*, Aristotle argues that clashing winds cause tidal waves and earthquakes (1.7.344b34–345a1, 2.8.368a26–35). The proverb in § 5 is nautical, and the others mentioned in *On Winds* (§§ 6, 46, 49, 50, 51) may be as well; §§ 28 & 33 discuss ships.

Theophrastus could here have said, simply, that whatever phenomena occur because of the winds also count as accompanying attributes. But by referring to the heavens, the sky, the earth, and the sea, he helps to make a case for the scope and importance of his subject and so of this treatise (as is appropriate in an opening chapter). I think this also explains (in part) the reference to animals and plants in the next sentence.

68 See Bonaventura (1593, 68). I suppose another possibility is that *περὶ τὸν οὐρανόν* was originally an inaccurate marginal gloss on *περὶ τὸν ἄέρα*, which was absorbed into the text.

69 The text of this chapter is in terrible shape. See the commentary ad loc. (pp. 257–259) for further discussion and defense of my rendering of it.



ὥς γὰρ [ἄν] ἀπλῶς εἰπεῖν ἐν τούτοις καὶ περὶ ταῦτα τυγχάνουσιν αἱ ζητήσεις, ἐν οἷς καὶ τὰ περὶ τῶν ζώων καὶ φυτῶν ἐμπεριλαμβάνεται.

The final line of the first chapter seems to be confirming (γὰρ) that (1) these investigations are into the above mentioned attributes, and that (2) they include the effects of winds on animals and plants (perhaps elaborating on περὶ τὸν ἄερα καὶ τὴν γῆν καὶ τὴν θάλατταν above), which make this inquiry especially important.

The language is reminiscent of αἱ γὰρ διαφοραὶ περὶ ταῦτα καὶ ἐν τούτοις a few lines earlier, but we should not assume that ἐν τούτοις and περὶ ταῦτα simply represent αἱ δυνάμεις and non-δυνάμεις παρακολουθοῦντα respectively. What the manuscripts give us is awkward, and so I think a case could be made either for bracketing these words, or for bracketing καὶ περὶ ταῦτα as a later attempt to copy the language of αἱ ... διαφοραὶ περὶ ταῦτα κτλ. Or one might consider reading ταῦτά (or αὐτά, Turnebus) for ταῦτα, taking ἐν τούτοις to refer to the previously mentioned attributes and taking περὶ ταῦτά with ἐν οἷς κτλ., rendering these words with something like: “the inquiries turn out to be into these (attributes) and concern the same (matters?) in which the things concerning animals and plants are included as well.” But I don’t know what that adds, or even precisely what it means. Another possibility is that Theophrastus is referring to the study of the physical world generally: ‘physics’, which studies the heavens, the air, the earth, and the sea, also includes the study of living things—the implication being that the study of wind will concern these as well, wherever relevant.

The difficulties in this last line of §1 are passed over in the two earlier English translations. Wood takes great liberties with the Greek: “Our enquiries in fact follow the same lines and concern the same matters as do the studies of animals and plants”; Coutant less so: “And to put it briefly, our inquiries deal with matters which also concern the life and well-being of plants and animals.”

There are a fair number of examples in *On Winds* of the effects of winds on plants: see §§13, 14, 38, 43, 45, 58. Outside of this work, note for instance Theophrastus’ lengthy account of the negative effect of cold wind on trees (*CP* 5.12.4–11). The only examples of animals in *On Winds*, however, are humans: Above I mentioned his reference to ships; but more likely a better example of what he is referring to at the end of §1 is his discussion of the effect of winds on the health of humans (§§56–57).<sup>70</sup> In §58, he writes that “concerning the

70 The effect of winds on health is a prominent topic in [Arist.] *Pr.* 1. In *GA* 5.5.785b8–12,

manufacturing of iron ... they say they beat out (iron) better with Notos winds than with Boreas”—an example of the effect of winds on humans and/or on earth (it does not really matter how one classifies it). Perhaps Theophrastus had in mind certain animals as well (especially domesticated ones, like livestock and poultry), though he gives no examples. In Aristotle's *GA* 4.10, however, there is the suggestion or implication that winds have an indirect effect on animal generation (777b30–778a3),<sup>71</sup> and in *HA* 7(8).18–19, he discusses the effect of weather (and presumably the wind) on the well-being of birds and fish. Aristotle refers to a northern wind (a weak Etesian, blowing after the winter solstice) called bird-winds (οἱ ὀρνιθίαι), though it is not entirely clear what these winds are, or how (or whether) they interact with birds.<sup>72</sup> I think it is possible that Theophrastus also had in mind the behavior of plants and especially animals as weather signs, which in the case of the signs of wind involves winds or their causes acting on the relevant plant or animal.<sup>73</sup> Perhaps in the complete *On Winds* Theophrastus did discuss (or he planned to and would have discussed) such issues further, especially the effects of winds on the health of animals generally.<sup>74</sup>

Re. ὥς γὰρ [ἄν] ἀπλῶς εἰπεῖν: I think bracketing ἄν is correct, as I cannot see what function it would serve here, though Wimmer's is the first edition to include this emendation. He is following Schneider's correction of his own

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Aristotle connects skin color in humans with sun and wind. The winds and health are a prominent issue in certain Hippocratic treatises; for examples, see below pp. 336–339.

- 71 In *HA* 6.18 Aristotle discusses, without accepting, the view that certain winds can impregnate mares (572a8–20).
- 72 Arist. *Mete.* 2.5.362a22–24. [Arist.] *Mu.* 395a4–5 refers to them as well, saying only that they are northern winds that blow in spring. Louis (1982, 117–118) comments: *Ces vents sont appelés ainsi sans doute parce qu'ils coïncident avec le retour des oiseaux au début du printemps*. If the relationship between these winds and the flight of birds is coincidental, then they are not relevant here. Alexander comments that what Aristotle calls bird winds are 'now' called White Notos: καὶ γὰρ οὗτοι (sc. οἱ ὀρνιθίαι) ἐτησίαι εἰσὶν· οὓς δὲ εἶπε λευκονότους, νῦν ὀρνιθίας καλεῖ (*in Mete.* CAG 3.2, p. 99.10–11).
- 73 Animal signs are quite prominent in the Peripatetic *On Signs*: see 15–19, 22–23, 25, 28–30, 38–42, 44, 46–47, 49, 52–54; plants less so: see 37, 49, 55. On animal signs in Aristotle, see e.g. *HA* 6.21.575b17–19, 8(9).40.627b10–13. Of the few chapters in *Pr.* 26 that deal with weather signs, only one concerns the behavior of animals: 61 (which opens, “Why, when many spider webs are in motion, are they signs of wind?”); cf. *Sign.* 29. (For a brief account of the ‘mechanics’ behind spider webs as weather signs, see Mayhew 2017.)
- 74 In § 14, Theophrastus says that possible changes in the winds, and the consequent changes in climate in certain locations and the effect of that on crops, “must be investigated” (σκεπτέον).

edition—ὥς γὰρ ἀπλῶς, *deleto medio ðν, scribendum esse recte monuit Coraii censura* (1821, 5: 159)—though long before Coray<sup>75</sup> made this suggestion, Turnebus had crossed out ðν in his copy of the Vascosanus edition.

Re. ἐμπεριλαμβάνεται: I see no reason to accept Grynaeus' emendation of the manuscript reading to περιλαμβάνεται.<sup>76</sup> (In context, either would basically mean the same thing: 'include'.) περιλαμβάνεται does appear more often in the extant works of both Aristotle and Theophrastus, but ἐμπεριλαμβάνεται is found a dozen times in Aristotle, and likely once (elsewhere) in Theophrastus (*CP* 5.3.4).<sup>77</sup>

### *On Winds 2*

§§ 2–6.45 form a unit of sorts, which I would describe as the presentation of the basics of Theophrastus' anemology, with Boreas and Notos as paradigm winds. Steinmetz calls the *Vorlesungsthema* of §§ 1–6.45 *Rückführung der Eigenschaften der Winde auf zwei Grundgegebenheiten: Ausgangspunkt und Abstand vom Ausgangspunkt* (1964, 25). I would not include § 1 under this heading; otherwise, it is an accurate description of the 'theme' of §§ 2–6.45: the attributes of the winds can, for the most part, be brought back to the location of origin and distance from that location (though of course the motion of the sun is crucially important, and so 'location' here includes a particular location's relationship to the path of the sun).

In § 1, the purpose of this treatise (in contrast to the study of the nature of wind *per se*) was said to be the attempt to explain how the attributes that differentiate the various winds (the capacities and other accompanying attributes) accompany each wind according to reason. § 2 begins with Theophrastus indicating the importance of location in this inquiry: each wind is associated with a particular location, which is "as it were" (ὥσπερ) essential to it, and these attributes can be, "generally speaking" (ὥς ἀπλῶς εἰπεῖν), connected to the locations. He will go on to use Boreas and Notos as paradigm cases, to demonstrate the connection between location (north and south, perpendicular to the path

75 Diggle (2004, 55 nn. 183 & 184): "Adamantios Corais (Κοραΐς) [1748–1833] .... Coray (without initial) is what he called himself in France .... Coray published ... conjectures in 1819, in a review in a Viennese newspaper of vols. i–iv (1818) of Schneider's complete Theophrastus .... Schneider reports them in vol. v (1821) ...."

76 Coutant attributes the emendation to Vascosanus (1551), but Grynaeus (1541) was first.

77 I say likely, because ἐμπεριλαμβάνοντα in *CP* 5.3.4 is Scaliger's reasonable conjecture for the manuscripts' ἐκπεριλαμβάνοντα (forms of which are rare, and none earlier than Origen).

of the sun) and attributes (some the same, e.g. they are both powerful; some opposite, as one is cold and the other hot).

The actual essence (οὐσία) of each wind is, I take it, what is essential to wind *per se* plus the capacities and (less so) the remaining accompanying attributes, which make each wind the particular kind of wind it is. Since these essential attributes can, allowing for certain qualifications (hence ἀπλῶς), be tied to the location associated with the wind, location too is in a way an essential attribute of that wind as well.<sup>78</sup> The double qualification (ἀπλῶς and ὥσπερ) might be Theophrastus' way of indicating that location falls under neither αἱ δυνάμεις nor τὰ παρακολουθοῦντα (though perhaps it is included in the latter), or it could be his way of saying that οὐσία can be applied to winds only provisionally (compared to actual entities that are or have an οὐσία—more on this concept shortly). Nevertheless, as a major source of these, location is of capital importance in explaining the various winds. To give an obvious example: temperature (an essential feature of wind) is largely a result of a wind's location (see e.g. §3).

For the idea (prominent in *On Winds*) that the same wind has different attributes in different locations, applied in a botanical context, see Thphr. *CP* 2.3.1 and *HP* 4.14.11, 8.7.6–7.

ἐπεὶ δ' ἐκάστου τόπος ἴδιος ὑπόκειται, καὶ τοῦθ' ὥσπερ τῆς οὐσίας, ἀπὸ τούτων ὡς ἀπλῶς εἰπεῖν καὶ αἱ διαφοραὶ καὶ αἱ δυνάμεις ἐκάστου εἰσὶν.

ἐπεὶ indicates that what follows (the claim that a particular location underlies each wind) is presented as an unsupported premise. I assume this is because it is considered (at least in some sense) an obvious point and common knowledge: Everyone knows Boreas blows from the north, Notos from the south, etc.

A particular location underlies or serves as a basis for (ὑπόκειται) each wind. The two previous English translations do not feature ὑπόκειται: “as each wind has its own particular place of origin” (Wood); and, “each wind has its own proper place” (Coutant). There is nothing inherently objectionable here: Theophrastus could be saying merely that a particular location *exists* for each wind (note LSJ s.v. ὑπόκειμαι 11 8 b: ‘exist’). But in fact I think a hint at something more important is lost with this approach to translating the line. As mentioned above (p. 75), in Aristotle's summary of the four causes

<sup>78</sup> Theophrastus recognized that changing a plant's location (through transplantation) could—in a relatively short time—change its nature. See e.g. *CP* 4.11.5–9, and Leroi (2014, ch. 95). Location arguably has an even closer connection to the nature or essence of the various winds.

in *Metaph.* A.3, he refers to the material cause as “the matter and/i.e. the substratum” (τὴν ὕλην καὶ τὸ ὑποκείμενον, 983a30). And τὸ ὑποκείμενον is a standard way for Aristotle to refer to the material cause of something: the substratum or underlying subject—some entity or material(s)—that stays in existence during a process of change.<sup>79</sup> Theophrastus too makes use of τὸ ὑποκείμενον in this sense, especially in *CP* 6 (which is an independent botanical treatise on the flavors and odors of plants and their products).<sup>80</sup> So it is likely that Theophrastus did not use ὑπόκειται here simply to mean ‘exist,’ but to indicate that the location is especially significant as a source for the material cause of a particular wind. For instance, he writes that Boreas and Notos are both “powerful and blow most of the time, through air being compressed towards the north and the south more than elsewhere” (§ 2).<sup>81</sup>

I think it is clear that by “particular location” Theophrastus is referring especially to the place of origin of a wind. Nevertheless it should be kept in mind that he often speaks of those places over or through which certain winds blow (e.g. seas or plains or mountains) and where they blow to. As an example of the latter: he discusses the effects in Macedonia of Boreas striking the high hills around Olympus and Ossa (§ 27). As an example of the former: he writes that “locations produce many changes in winds, especially becoming more violent or calmer, according to whether it blows through a narrow or a vast space” (§ 29). This passage also illustrates the fact that Theophrastus does not consider location a source only of the matter of winds.

Note that in *Metaph.* H.2, Aristotle begins by summarizing the agreed upon point that ‘being’ (see the next paragraph, on οὐσία), in the sense of matter or what is underlying, is that which exists potentially or by capacity.<sup>82</sup> He goes on to illustrate the many differentiae (διαφοραί) derived from how the matter or what is underlying is held together: for instance, some things are characterized by tying (like a bundle), by gluing (like a book), etc.—and some “by location, like the winds” (τὰ δὲ τόπω οἶον τὰ πνεύματα, 1042b21).

Pierre Pellegrin, in his *Dictionnaire Aristote*, begins the entry on *Substance*, *essence* (*ousia*, οὐσία): “*Double traduction de l'intraduisible ousia*” (2007, 176). In Aristotle (and Theophrastus), the term generally refers either to an entity (as opposed to some other sort of existent, e.g. an attribute or an action)—traditionally, but misleadingly, rendered ‘substance’—or to the essence of an

79 For examples of this usage in his *Meteorology*, see 1.2.339a30 and 1.3.339b2.

80 See *CP* 6.2.1–2, 6.6.7, 6.9.2, 6.12.5, 6.16.8, 6.17.12.

81 Cf. Arist. *Mete.* 2.4.361a14–21.

82 ἡ δὲ ὡς ὑποκειμένη καὶ ὡς ὕλη οὐσία ὁμολογεῖται, αὕτη δ' ἐστὶν ἡ δυνάμει (1042b9–10).

entity.<sup>83</sup> It is formed from the feminine present participle of the verb ‘to be’ (εἶναι), and one could argue that it should be rendered ‘being’ in all cases: ‘being’ in the sense of an entity (some *thing* that exists), ‘being’ in the sense of the essential being *of* some entity (i.e. its essence), and more generally ‘being’ in the broad sense of ‘existence’. The first three occurrences of οὐσία in Theophrastus’ *Metaphysics* have three different meanings: “all of *existence*” (τὴν πᾶσαν οὐσίαν, 4a13), “some other *entity*” (ἐτέρα τις οὐσία, 4b6), and “the *essence*” (τὴν οὐσίαν, 5a8) of the ruling principle of all things. Setting aside οὐσία in the sense of ‘existence,’ most scholars, like Pellegrin, translate it in either of the other two ways (as entity or essence), depending on the context.

Οὐσία appears twice in *On Winds* (here and in §36), and in both cases its meaning is clearly ‘essence’ (of wind). The word appears just over thirty times in the botanical works, where it usually means ‘essence’ (and seems to be used as a synonym for ‘nature,’ φύσις): e.g. τὴν ἰδίαν οὐσίαν ἐκάστου (“the particular essence of each” plant and tree, *CP* 2.19.6). But cf. ἐν τοῖς φυτοῖς ἔνια τοιαῦτ’ ἐστὶν ὥστ’ ἐπέτειον ἔχειν τὴν οὐσίαν (“among plants some [of the parts] are such that their *existence* lasts for a year,” *HP* 1.1.2).

In §1, Theophrastus first mentioned αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα, and then referred to them collectively as αἱ διαφοραί. I think it unlikely that he is treating διαφοραί and δυνάμεις differently here in §2 (though he may simply have been a bit careless). Although I translate καὶ ... καὶ with the standard ‘both ... and,’ I take Theophrastus’ meaning to be something like “the differentiae and so the capacities” (or “and also” or perhaps even “and especially”).<sup>84</sup> In any case, nothing much hangs on this slightly different formulation.

Re. ἐκάστου εἰσὶν: I agree with every editor since Aldus that the text of (the end of) this passage in the manuscripts (ἐκάστον εἰπεῖν) is corrupt. I think the easiest way to make sense of the text is to change ἑκάστον to ἐκάστου, as suggested by Burnikel (1974, 24), and εἰπεῖν to εἰσὶν, as suggested to me by Christian Wildberg (and which I later discovered was Gigon’s conjecture).<sup>85</sup>

83 See especially Arist. *Metaph.* Γ.2, Δ.8, and Z (this last devoted to answering the question ‘What is οὐσία?’).

84 Smyth §2877 is perhaps relevant: “καὶ ... καὶ both ... and, not only ... but also, as ... so, as well as ... as also, sometimes whether ... or, emphasizes each member separately, and forms a less close combination than τὲ ... καὶ” (1956, 651; cf. Denniston 1950, 323–325).

85 Recent editors (with the exception of Gigon) have opted for bracketing εἰπεῖν. Coutant attributes this bracketing to Wimmer, but he was preceded by (and is likely following) Schneider. Schneider left εἰπεῖν alone in his edition of the text, but later changed his mind: *Mihi verbum εἰπεῖν intempestive repetitum* (1818, 4: 681).

οἶον πρῶτον ἢ τοῦ μεγέθους καὶ σμικρότητος, καὶ ψυχρότητος καὶ θερμότητος, καὶ πλήθους καὶ ὀλιγότητος, καὶ τῶν ἄλλων τῶν πλείστων.

The feminine singular article (ἡ) in the opening of this line refers back to either αἱ διαφοραὶ or αἱ δυνάμεις. Of the two, it is best to take it more broadly to mean ἡ διαφορά (which in any case goes better with the list of genitive nouns that follows). If, however, one thinks πρῶτον refers solely to the three pairs of opposites indicated, but not to τῶν ἄλλων τῶν πλείστων (more on this below), then one could make a better case for ἡ δυνάμεις here.

Theophrastus proceeds to list the διαφοραὶ, beginning first with the same two pairs that begin the list in §1: greatness and smallness,<sup>86</sup> heat and cold. As I mentioned earlier (p. 90), it is surprising that there is no reference to moistness or dryness (ἡ ξηρότης καὶ ἡ ὑγρότης), or to some equivalent (as in §1, “rainy or clear”).

It may strike the reader as unusual that Theophrastus would refer in the first list (§1) to τὸ πολλάκις ἢ ὀλιγάκις, and to πλήθους καὶ ὀλιγότητος here. But this is not problematic. In the first list he used adverbs (“whether blowing frequently or infrequently”); here, substantives: ὀλιγότητος for ὀλιγάκις, and πλήθος for πολλάκις.<sup>87</sup> I think πλήθους here clearly refers to the quantity or abundance of times that a particular wind blows, i.e. to its frequency.

Theophrastus rounds out this condensed list with τῶν ἄλλων τῶν πλείστων: this refers to all of the other attributes and factors by which one differentiates the various winds, especially those included in the fuller list in §1 but not here: whether a wind is seasonal,<sup>88</sup> is continuous, is regular; its effect on the heavens, the sky, the earth, and the sea (including on plants and animals).

Wood thought πρῶτον needed a corresponding (if merely implied) ‘secondly’, and in his translation he includes it, in brackets: “and [secondly] the majority of other physical conditions.”<sup>89</sup> He may be right; and if he is, this would support the suggestion I made earlier that here (after the attributes associated

86 μικρότης in §1, σμικρότητος in §2. On the few occasions when Theophrastus uses σμικρ- instead of μικρ- (five in addition to the one in §2), they always follow a vowel (καὶ in four cases). But following a vowel or not, Theophrastus generally prefers μικρ- (seven times in *On Winds*, most following vowels) and so I cannot explain the appearance of σμικρότητος here (though a scribe may well be responsible, and in any case the difference makes no difference at all).

87 LSJ s.v. ὀλιγότης: “opp. πλήθος in all senses”.

88 Unless the καθ’ ὥραν ἢ τὸ ἀεὶ πνεῖν from §1 is meant to be subsumed under πλήθους καὶ ὀλιγότητος in the condensed list in §2.

89 I think ‘physical’ is unnecessary.

with power, temperature, and humidity) is where we move from δυνάμεις to τὰ παρακολουθοῦντα that are not δυνάμεις.

ὑπάρχει δὲ ταῦτά τὰ δ' ἐναντία τοῖς ἐναντίοις, ἀμφοτέρω δ' εὐλόγως· οἷον τῷ βορέα καὶ τῷ νότῳ.

This is the first time the previously mentioned αἱ διαφοραὶ are referred to as opposites. (Cf. Arist. *Phys.* 1.4.187a9 & 1.5.189a10.) Theophrastus may have in mind αἱ δυνάμεις primarily (especially such pairs as great or small, hot or cold); but he also means to include the διαφοραὶ that are not δυνάμεις, in that some of the non-δυνάμεις attributes can also be presented as pairs of opposites: e.g. some winds (or the same winds in different locations) have a positive effect on crops, others do not (see §§ 38 & 43).

Theophrastus is going to demonstrate that this seeming paradox (that the same and opposite attributes are both present in opposite winds) is in fact reasonable (εὐλόγως). He is thereby doing what he set out to do: to show that “the accompanying attributes accompany that wind according to reason” (κατὰ λόγον). The remainder of § 2, and all of § 3, are devoted to this demonstration.

Theophrastus uses a standard Aristotelian formula (ὑπάρχει + dative) to indicate that these characteristics are present in or belong to a subject (namely opposite winds, τοῖς ἐναντίοις). According to Bonitz (*Index* s.v. ὑπάρχειν 3) ὑπάρχειν + dative expresses “ποιότητες *et* πάθη τοῦ ὑποκειμένου” (789a12–15). He provides many examples. The same formula is found at least once in each of the *opuscula*: e.g. *Sud.* 19 (moisture is present in sweat); *Ign.* 7 (the intense heat in fire cannot belong to moist bodies); *Metaph.* 5b3 (motion belongs to soul).<sup>90</sup> It is found twenty times in the botanical works, to indicate that parts or attributes belong to plants generally or to a particular kind of plant (e.g. *HP* 1.1.5 & 9.1.1, *CP* 2.11.10 & 4.12.10). There is one other instance of ὑπάρχει in *On Winds* (§ 53), but it is not accompanied by a dative.

Re. ταῦτά τὰ δ' ἐναντία: I think ταῦτά (Wimmer) makes more sense than ταῦτα (ms. A), as it offers a better contrast (δ') to τὰ ἐναντία.<sup>91</sup> This is not to say ταῦτα is impossible: “These (attributes) and the opposite ones” etc. also works. In the original majuscule, of course, ταῦτά and ταῦτα are identical, and so an editor

90 See also *Lass.* 5, *Sens.* 46, 49, & 64, and *Ign.* 2 & 64.

91 Schneider was the first to print ταῦτά, though he thought it necessary to insert τοῖς μὲν before it. In his notes on the text (1818, 4: 681), he indicates that he is following Furlanus' Latin translation (*Haec enim ventis inesse constat*); Furlanus' text, however, still has ταῦτα. Wimmer prints ταῦτά without the unnecessary addition.



should feel free to pick whichever is best, with no qualms about doing violence to the manuscript tradition.

Theophrastus provides the best example to make his point: the most well-known pair of winds, Boreas and Notos—quite simply, *the* north wind and *the* south wind.<sup>92</sup> They possess the same attributes (of which the cause too is the same), as well as opposite attributes. More will be said about these winds and their natures in due course; here it is enough to point out which of their attributes are the same, and which are opposite. They are the same in that they are the two most prevalent winds, and because they are both powerful winds. They are opposite in that one comes from the north, the other from the south, and (clearly related) one is cold and the other hot. Aristotle states explicitly that these are the two most prevalent winds (*Mete.* 2.4.361a5–21), and that Boreas is opposite (ἐναντίος) to Notos (*Mete.* 2.6.363b14–15).

No doubt owing to their prevalence in reality, Boreas and Notos receive a great deal of coverage in the Peripatetic literature on winds, in which they are usually treated together.<sup>93</sup>

μεγάλοι μὲν γὰρ ἄμφω καὶ πλείστον χρόνον πνέουσι, διὰ τὸ συνωθεῖσθαι πλείστον ἀέρα πρὸς ἄρκτον καὶ μεσημβρίαν, πλαγίων ὄντων πρὸς τὴν τοῦ ἡλίου φορὰν τὴν ἀπ' ἀνατολῶν ἐπὶ δυσμᾶς.

Theophrastus now sets out to argue for and explain the more paradoxical part of the claim just stated: that (some of) the *same* attributes are present in *opposite* winds.<sup>94</sup> He first points out that Boreas and Notos winds are similar in at least two important respects: they are both powerful, and they both

92 Boreas was especially important, culturally: Pindar calls “father Boreas” the “king of the winds” (*Pyth.* 4.181–182). For brief accounts of Boreas and Notos winds in ancient Greek culture, and especially in Homer and during the archaic period, see Coppola (2010, 40–52) and *OCD*<sup>3</sup> (s.v.v. ‘Boreas’ & ‘wind-gods’), which provide references to ancient authors. See also Hünemörder 2006a and 2006c.

93 See: Thphr. *Vent.* 2–11, 27–29, 32, 34, 40–41, 43, 46, 48–50, 53–54, 56–59, 61; Arist. *Mete.* 1.7.344b34–345a1, 1.10.347a36–b10, 2.3.358a27–b1, 2.4.361a5–b13, 2.5.362a11–22, 2.5.362b30–363a8, 2.6.363b14–15, 2.6.364a13–27, 2.8.368a34–35; [Arist.] *Pr.* 1.8–10, 19, 20, 23–24; 25.18; 26.2, 3, 9, 10–12, 14–17, 19–20, 27, 31, 32, 35b, 37–47, 49–50, 52, 55, 56, 60, 62; [Arist.] *Mu.* 4.394b19–33, 395b14–15; [Arist.] vs 973a1–8, 973b7–11; [Thphr.] *Sign.* 35–36. There is no discussion of these winds in Thphr. *Metars.* 13, but then that chapter is not concerned with the nature or causes of particular winds. North and south (along with east and west) are mentioned as directions or regions (13.9–10), but not as kinds of winds.

94 As I indicate in the Introduction (p. 17), in doing so he provides the closest thing in *On Winds* to a summary of his general conception of wind.

blow throughout much of the year. Coutant & Eichenlaub comment (1975, 66): “There can be little doubt of the accuracy of this observation, as all modern data from Greece support the dominance in force and frequency of the north and south winds.”

On their being the strongest or most powerful, note that three chapters in *Pr.* 26 raise questions relevant to the claim that both of these winds are strong: 26.39 (“Why is Boreas great [i.e. powerful, μέγας] when it begins, but small [i.e. weak, μικρός] when it comes to an end, whereas Notos is small when it begins, but great when it comes to an end?”); 26.45 (“Why is Notos small when it begins, but becomes greater when it comes to an end, whereas Boreas is the opposite ...?”); 26.60 (“Why is Boreas vigorous [λαμπρός] during the day, but falls at night?”). The discussion that follows in each of these chapters, however, does not shed light on, or seem to depend on, Theophrastus’ account in § 2.

Given the emphasis here and elsewhere on the prevalence of these winds, I take πλείστον χρόνον πνέουσι to be saying—to use the language of the relevant attributes—that they blow frequently (πολλάκις) during the day, and (perhaps especially) that they blow all the time (τὸ ἀεὶ πνεῖν), i.e., not seasonally but all year; and what’s more, of the winds that blow frequently and all year, these two do so most of all. Discussing the prevalence of these winds (*Mete.* 2.4.361a5–21), Aristotle refers to the fact that they blow perpendicular to the path of the sun (i.e. the path it takes around the earth every day); but the relevance he gives this is not that the sun pushes the air in its path, but that as it passes by it generates exhalations, and as it recedes it does the opposite, and this causes clouds to form on either side of the path of the sun. Whether this account can be reconciled with Theophrastus’—or to what extent Theophrastus’ represents a departure from Aristotle’s—of course depends in the end on whether their accounts of wind generally can be reconciled.

The incomplete *Pr.* 26.35b likely raised a question about the frequency of these winds;<sup>95</sup> and though what follows uses some of the same language as § 2, the account it gives is ambiguous (944a36–b3):

... And Boreas and Notos blow most often for this reason: when one opposite is mastered by the other, it is least able to remain on a straight course, but it is better able (to resist something coming)<sup>96</sup> from the side.

95 In my Loeb edition of the *Problems*, I follow Theodore Gaza in dividing *Pr.* 26.35 in two, and I mark a lacuna at the beginning of 35b. Gaza includes an opening to this chapter not found in the Greek: *Cur aquilo et auster saepissime spirant? An quia ...* (“Why are Boreas and Notos the most frequent? Is it because ...”).

96 In my Loeb translation, I inserted in parentheses “to resist a wind coming”; but I now think

Now Notos and Boreas blow from regions on either side of the path of the sun, whereas the others blow more from regions going against it.<sup>97</sup>

The language of mastery is absent from § 2 (though cf. § 18); but it could be that the author of *Pr.* 26.35b is saying that the air is pushed to the side of the path of the sun, because the sun masters the air in its path. (See also *Pr.* 26.10 & 15.)

Theophrastus next explains why Boreas and Notos are both powerful and blow throughout much of the year, and that the cause is the same in each case: “through air being compressed towards the north and the south more than elsewhere.” This implies that compressed air—how dense and cloudy it is—is part of Theophrastus’ explanation of wind, and that the amount of compressed air (at least in part) determines how great or powerful (μεγὰς) a wind is. The language of compression and compressed air is surprisingly uncommon in *On Winds* (and in Aristotle’s *Meteorology*<sup>98</sup>), given the fundamental importance of this passage in explaining wind generally. Aside from συνωθεῖσθαι (and ἐξωθεῖται) in § 2, I note only one other passage: μεγάλης δ’ ἐπινεφῆς καὶ ὑέτιος διὰ τὸ πλείω συνωθεῖν ἄερα (“when [the origin of a wind] is great [‘large’ or ‘powerful’?] it is cloudy and rainy because it thrusts more air together”) (§ 7).<sup>99</sup> But in his *Metarsiology*, Theophrastus says that the wind moves “because the air compacts and is compressed, sometimes in the east and sometimes in the west, south or north” (13.8–14).<sup>100</sup>

Next he explains why most of the wind is compressed to the north and to the south: because north and south are athwart or perpendicular to (πλαγίων) the path of the sun, and the movement of the sun causes a lot of air to be thrust out—away from its path, and so to the north and to the south (and presumably, or logically, straight beneath it as well). It is unclear to me why the wind is not also (and even more so) compressed toward the west, the direction in which the sun is thought to move. (More on the ‘mechanics’ of this solar pushing in the next section.)

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that might be mistaken, as the two resistant forces, one mastering the other, could be the sun and the air in its path.

97 ... καὶ ὁ βορέας καὶ ὁ νότος διὰ τοῦτο πλειστάκις πνέουσιν, ὅτι τὸ ἐναντίον ὑπὸ τοῦ ἐναντίου κρατούμενον κατ’ εὐθυωρίαν ἤκιστα δύναται διαμένειν, ἀλλὰ μάλλον ἐκ τοῦ πλαγίου. ὁ μὲν οὖν νότος καὶ βορέας ἐκ τῶν ἐφ’ ἑκάτερα τόπων τῆς τοῦ ἡλίου φορᾶς πνέουσιν, οἱ δὲ ἄλλοι μάλλον ἐκ τοῦ κατ’ ἀντικρύ.

98 Cf. Arist. *Mete.* 2.8.368b4–5: “a mass of this wind being pushed by the opposite wind” (τοῦτου τοῦ πνεύματος ἀθρόαν ὠθουμένην ὑπὸ τοῦ ἐναντίου πνεύματος).

99 Cf. συνωθυμένης τῆς θαλάττης (“as the sea is pushed together”) (§ 53).

100 See also Thphr. *Metars.* 13.27–31, and (on clouds) 7.6–7.

A word is in order here explaining how Theophrastus (likely) conceived of the sun's movements around the earth. I assume he held some version of a view that was current in the early Peripatos. The celestial sphere of the sun moves daily around the Earth (itself a sphere, which is fixed and at the center of the cosmos), while the sun itself moves along the ecliptic (across its sphere) during the course of the year, such that its daily motions about the Earth are at one extreme the summer tropical circle, and at another the winter tropical circle.<sup>101</sup> In § 2, Theophrastus is speaking solely of the sun's daily orbit around the Earth, parallel to the equator, with north and south perpendicular to the path of the Sun and the air being pushed directly to the north and the south. In § 10, however, it is clear that he is relying on the notion that the sun is in different locations in relation to the Earth (in the north or the south) during different times of the year (which explains why Boreas and Notos do not blow at precisely the same times throughout the year).

To understand precisely what Theophrastus is claiming when he says that the air is compressed to the north and to the south, and to clarify much of what is coming, we must identify more precisely the origin of Boreas and especially Notos. Now one might assume that the sun pushes air north till it compacts in the arctic, near the North Pole, and pushes air south till it compacts in the Antarctic, near the South Pole. This is almost certainly not Theophrastus' view (in the case of Notos), but he unfortunately does little to clarify the matter. I can only assume that he is relying on Aristotle, who devotes *Mete.* 2.5 to showing that while the arctic/North Pole is the starting point of Boreas, the Antarctic/South Pole is *not* the starting point of Notos.

Aristotle argues that there are two habitable zones. To use our language, one is roughly from the Arctic Circle to the Tropic of Cancer (this of course is the one containing Greece and known to Aristotle), the other is roughly

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101 Lindsay Judson, describing Aristotle's astrophysics, writes (2015, 157–158): "Homocentric theory took its starting-point from the motion of the so-called fixed stars: this motion seemed simply to require one such perfect motion per day. It might also have seemed obvious that the sun's motion was a combination of two perfect motions—a daily one like that of the fixed stars and an annual one accounting for the sun's motion along the ecliptic—and there are signs of a two motion scheme in parts of Aristotle's *De caelo*. It is clear from the account in *Metaphysics* Λ, however, that Eudoxus thought that the motions of the planets, including the sun, were more complex than this." In a footnote (no. 20), Judson refers to the following passages in *De caelo* as "signs of a two motion scheme": 2.2.285b27–33, 2.10, and 2.14.296a34–b3. He points out, however, that 2.12 presupposes a more complex scheme. Judging by *On Winds* at least, there's no reason to think Theophrastus held anything but a two motion scheme.

from the Antarctic Circle to the Tropic of Capricorn. The Tropic of Cancer runs through southern Libya and Egypt, and Aristotle believes that there are important mountain ranges, near or perhaps just below the tropic—the Aethiopian mountains in Libya, the Silver mountains in Egypt—that are the sources for the major rivers of this region (e.g. he thinks the Silver mountain range is the source of the Nile) (*Mete.* 1.13.350b10–14). This region, he believes, is the source of Notos winds, which blow “from the summer tropic” (ἀπὸ τῆς θερινῆς τροπῆς, 2.5.362a31). Returning to Theophrastus, it would seem he thinks that the sun pushes the air south, which becomes compressed near the Tropic of Cancer, likely in his view owing to these mountains. There may be some indirect confirmation of this in §5: “For those (dwelling) in Egypt and such locations ... Notos is powerful when it begins.”

ἐξωθεῖται γὰρ ἐνταῦθα τῇ τοῦ ἡλίου δυνάμει· διὸ καὶ πυκνότατος καὶ συνεφέστατος ὁ ἀήρ.

On the role of the sun in explaining the winds, see §§10–12, 15–19, 23–24, 31, 40–41, 45, 47–49, 60–61.<sup>102</sup> In §15, Theophrastus says that the sun and the exhalation (ἡ ἀναθυμίασις) are each in a sense the producer (ὁ ποιῶν) of the wind; but in fact the exhalation is more so, with the sun being its co-worker (συνεργῶν) in producing the wind.<sup>103</sup> In §19, the sun is referred to as a joint-cause (συναίτιον). Presumably, it is a joint-cause through its motion (as here, in §2) and (more often) through its heat (and the variation in its heat depending on where it is in a particular season, and whether it is day or night, and, during the day, where the sun is in the sky—and all of this in relation to some specific location). It is surprising that the sun is never mentioned in Theophrastus' *Metars.* 13 (though, as I said, I believe this is an epitome of Theophrastus' original).

Theophrastus does not refer in §2 to rising vapors or exhalations to explain these similarities in Boreas and Notos. But I think they are implied, if (as I think probable) the air thrust out by the power of the sun is (at least in part) air that has risen, as vapor, into the sun's path (or into the path of upper air thrust out by the sun). Sharples (1998, 151) is more confident:

102 Cf. Arist. *Mete.* 2.4.359b34–360a13, which has a different account of the sun's role in the production of the winds.

103 Aristotle says that the material cause of all meteorological phenomena is “the exhalation,” whereas the efficient or moving cause is in some cases or sometimes the celestial objects, in others “the condensation of contracting air” (πάντων δὲ τούτων αἴτιον ὡς μὲν ὕλη ἡ ἀναθυμίασις, ὡς δὲ τὸ κινεῖν ὅτε μὲν ἡ ἄνω φορά, ὅτε δ' ἡ τοῦ ἀέρος συγχρινομένου πῆξις) (*Mete.* 1.4.342a27–34).

Clearly it [i.e. the sun causing the air to be pushed north and south] is in part a result of its heat increasing the (moist) exhalation; but Steinmetz [1964, 38–40] also argues that the heat from the sun, being a material stuff, physically pushes the air aside, a view trenchantly rejected by Gottschalk [1967, 24].

I think Theophrastus is claiming that the sun (whether the object itself or its heat is unclear), no doubt through intermediate upper air, is pushing air out of its path, which becomes wind—and, that some of the air being pushed is (as Sharples and others claim) moist exhalations. This gets further confirmation from Theophrastus' *Metars*. 13, in its terse remarks about the strength of winds generally: “Strong winds occur, when many vapors ascend” (22).<sup>104</sup>

In attempting to demonstrate that the sun has an influence on—is a cause of—the winds, Theophrastus is by and large following Aristotle.<sup>105</sup> In his *Meteorology*, Aristotle indicates that the principle efficient cause of phenomena in the sublunary world, and so of meteorological phenomena, is the capacity or power of celestial objects (τὸ δ' οὕτως αἴτιον ὅθεν ἡ τῆς κινήσεως ἀρχή, τὴν τῶν αἰεὶ κινουμένων αἰτιατέον δύναμιν, 1.2.339a30–32).<sup>106</sup> Similarly, in *GA* 4.10 he says that the condition of the sea depends on whether and in what way the winds are blowing; and this in turn depends on “the period of the sun and the moon.” And this determines the seasons, which in turn influence the generation and nature of living things—all of this following according to reason (777b30–778a2).<sup>107</sup>

ἐνταῦθα is ambiguous, as one could take it to mean that the air is thrust out either *from here* (i.e. from the path of the sun) or *to there* (i.e. to the north and the south).<sup>108</sup> Wood favors the former: “here” (adding in a note “That is in the path of the sun”); Coutant does as well: “the air there.” But I think the phrase that follows—διὸ καὶ πυκνότατος καὶ συννεφέστατος ὁ ἀήρ—supports the latter

104 Cf. Coutant & Eichenlaub (1975, 66): “The Theophrastean explanation is innovative in that a mechanical exchange is envisioned, following the direct action of the sun, without the necessity of the auxiliary mechanism, the dry exhalation.” For further bibliographical information concerning this passage and these issues, see Sharples (1995, 151), with notes.

105 For Theophrastus on the sun as a cause of sublunary phenomena, see also *Ign.* 44, *Metaph.* 7a20–b5, and fr. 176 FHS&G.

106 See also *Phys.* 2.2.194b13, *Metaph.* Λ.5.1071a14–16, and *Mete.* 1.3.341a13–24 & 1.4.342a27–34.

107 ὥσπερ γὰρ καὶ θάλατταν καὶ πᾶσαν ὁρῶμεν τὴν τῶν ὑγρῶν φύσιν ἰσταμένην καὶ μεταβάλλουσαν κατὰ τὴν τῶν πνευμάτων κίνησιν καὶ στάσιν, τὸν δ' ἀέρα καὶ τὰ πνεύματα κατὰ τὴν τοῦ ἡλίου καὶ τῆς σελήνης περίοδον, οὕτω καὶ τὰ ἐκ τούτων φύόμενα καὶ τὰ ἐν τούτοις ἀκολουθεῖν ἀναγκαῖον· κατὰ λόγον γὰρ ἀκολουθεῖν καὶ τὰς τῶν ἀκυροτέρων περιόδους ταῖς τῶν κυριωτέρων.

108 LSJ s.v. ἐνταῦθα I. b. 2: *hither, thither*.

reading: to state it somewhat awkwardly, that the sun pushes the air *to there* explains why “the air is densest and cloudiest” there. (Not much hangs on this, however, as Theophrastus holds both that the air is pushed out *from here* and *to there*.)

Re. διὸ καὶ πυκνότατος κτλ.: On the air, and the winds that consist of this air, being thicker and cloudier, see below, pp. 115–116.

ἀθροισμένου δ' ἐφ' ἑκάτερα πολλοῦ, καὶ πλείων ἢ ῥύσιν καὶ συνεχεστέρα γίνεται πλεονάκιν, ἀφ' ὧν τὰ τε μεγέθη καὶ ἡ συνέχεια καὶ τὸ πλῆθος αὐτῶν καὶ ἄλλο τοιοῦτόν ἐστιν.

Theophrastus continues his explanation of why Boreas and Notos, though opposite winds, have some of the same attributes. He had just explained that the sun pushes the air north and south, which causes the air there (i.e. where it has been pushed) to become denser and cloudier. Now he adds that the air amassed in the north and the south flows back in the direction from which it came;<sup>109</sup> and the fact that it is a large amount of air causes the flow of these winds particularly to be greater and more continuous. I take ‘greater’ here to mean *not* that the flow of these winds contains more air (Theophrastus already mentioned that, as an explanation of what he is about to describe), but that it is more powerful; and I take ‘more continuous’ to mean that the flow goes (roughly) without interruption.

One major gap in Theophrastus’ explanation is an account of *why* the air amassed in the north and the south flows back in the direction from which it came (in the sense of south or north, not upwards toward the path of the sun). I assume Theophrastus is relying on the general account of the nature of winds referred to in §1 (what “has been considered earlier”). And indeed, his *Metarsiology* provides a mechanism for explaining this phenomenon:

Whenever the air compacts at that place<sup>110</sup> and is compressed so that there is no empty space left, the air moves from ⟨one side to⟩ the other since it is forced by the vacuum and carries with itself vapor from the water and the earth, so that there is no longer a vacuum.

13.10–14

109 This must be what he is saying, as Boreas flows from the north southward, and Notos does the opposite. And see §10: ἡ ἀνταπόδοσις γίνεται καθάπερ παλινροοῦντος τοῦ ἀέρος.

110 The previous line makes clear that he means east, west, south or north (*Metars.* 13.8–10).

This is surprising, as worded, as it sounds like Theophrastus has (*contra* Aristotle) accepted the existence of a void(s), in that the compressed air used to have empty spaces but now does not, and that the existence of a void or vacuum is what causes the compacted air to move back in the direction from which it came (as nature abhors a vacuum). This apparent implication requires a little more discussion.

That Aristotle thoroughly rejected the existence of a void (*Phys.* 4.6–9) is no proof that Theophrastus did as well. For although Theophrastus' colleague and contemporary, Eudemus of Rhodes, defended Aristotle's rejection of a void, Theophrastus' successor in the Lyceum, Strato of Lampsacus, did not (accepting the existence of micro-voids within the cosmos).<sup>111</sup> Later, in § 33, discussing drafts blowing through a house, Theophrastus explicitly refers to the void (literally, the empty): πρὸς γὰρ τὸ κενὸν ἢ φορά ("For movement is toward the void"). This might seem to support the attribution to Theophrastus of the view that there is a void, though I want to argue that that is not the case. We must look at the evidence outside of *On Winds* to decide the matter. I maintain that Theophrastus is not here referring to an actual void, but in some other sense to an empty space (e.g. air which contains much less or virtually no moisture).

Forms of κενός appear 28 times in Theophrastus' extant works (nineteen in *On the Senses*, six in the botanical works, and one each in *On Winds*, *On Fire*, and *Metaphysics*), and there are another four in the fragments from his doxography of natural philosophers. The reference to a void in *Ign.* 23 could, like that in *Vent.* 33, be interpreted either as an absolute void or as a relative void (and so supports neither case conclusively): Theophrastus there says that fire seeks a void into which it can move, otherwise it is snuffed out. The vast majority of the κενός-passages, however, are in references to the doctrine of the void in other philosophers: see e.g. *Sens.* 61–62 and fr. 229 FHS&G on Democritus, and *Metaph.* 6b1 on certain Pythagoreans. But every instance in the botanical works refers not to an actual void, but to a void in a relative sense, i.e. merely to an empty or hollow space. See e.g. *HP* 1.7.1: the roots of plants continue growing as long as their ground or location is empty and unobstructed (ἐπειδὴν ὁ τόπος ἢ κενὸς καὶ μηδὲν τὸ ἀντιστατοῦν); *HP* 8.10.3: the 'ear' of a stalk of barley destroyed by wind is empty (κενόν); *CP* 2.12.5: the bean plant (ὁ κύαμος) is weak because it is loose in texture and empty, i.e. hollow (μυκρὸν ... καὶ κενόν). Further,

111 See Eudemus fr. 81 Wehrli and Strato frs. 26A–C, 28A–B, 30A–B Sharples. Diogenes Laertius attributed to Strato an *On the Void* (Περὶ τοῦ κενοῦ) (5.59). Cf. *Pr.* 25.8–9 & 22.



one of the doxographical fragments (Galen, *On the Elements* 1.9 = 239 FHS&G) actually states that Theophrastus did in fact present objections to the existence of a void: “For, of the other objections to the sects that suppose that being cannot be affected and introduce the void, some have been stated by Aristotle and Theophrastus” (FHS&G trans., slightly revised).<sup>112</sup> Finally, I think there is a compelling argument from silence here: Had Theophrastus defended some version of the existence of a void, Simplicius would surely have mentioned it.

Sharpley has brief but excellent discussions of this issue, with references to the different parties in the scholarly debate (1998, 116–117 & 151–152).<sup>113</sup> He too concludes that none of the references to void in Theophrastus refers to an actual void. Rather, the mechanism Theophrastus relies on in his theory of winds is not air being *drawn* toward an actual void,<sup>114</sup> “but rather of excess matter being pushed from areas of high density into those of lower density. In actual fact all cases of alleged attraction by a vacuum are like this” (1995, 152).

It is ambiguous whether *πλεονάκις* modifies the entire phrase (“frequently becomes greater and more continuous”) or merely the second part (“becomes greater and, frequently, more continuous”). Turnebus (1600, 2: 452) translates it in the latter manner (*maior proinde fluxus existit et plerunque continetior*), Wood in the former (“a greater and more continuous flow of air thence occurs with greater frequency”).<sup>115</sup> I think it more natural to construe the line broadly. If I am right to translate the phrase “the flow frequently becomes both more massive and more continuous,” then I suspect *πλεονάκις* here serves a function not unlike that of *σχεδόν* and *ἀπλῶς* (discussed earlier): to make clear that what he is saying about Boreas and Notos is very often the case—generally or by and large true.

112 ὅσα γὰρ ἄλλα ταῖς ἀπαθῇ μὲν τὴν οὐσίαν ὑποτιθεμέναις αἰρέσεσι, παραπλεκούσαις δὲ τὸ κενὸν ἐναντιοῦται, τὰ μὲν ὑπὸ Ἀριστοτέλους τε καὶ Θεοφράστου λέλεκται ....

113 Most notably, Gottschalk (1965, 759–760 & 1967, 24) argues that the above quoted passage in *Metars*. 13 is the only passage in Theophrastus referring to an actual void or vacuum, but that this idea was likely an interpolation from Strato. Such an explanation, however, is unnecessarily complex. Whatever the original Greek was (and whatever was lost in translation and summarization), I think we can assume that there too Theophrastus was using *κενός* in the relative, not absolute, sense.

114 Theophrastus explicitly rejects the language of ‘drawing’ or a ‘draft’: Note that the full *κενός*-passage from § 33 reads: πρὸς γὰρ τὸ κενὸν ἢ φορὰ διὸ καὶ τὸ ἔλκειν οὐ καλῶς λέγεται. (“For movement is toward the void; and this is why ‘there is a draft’ is not said well.”)

115 Coutant translates the line as if *πλεονάκις* were a third characteristic of ἡ ῥύσις: “the flow is greater, more continuous, and more frequent.”

That these winds are more powerful and more continuous in turn (ἀφ' ὧν)<sup>116</sup> explains some of the attributes listed earlier: that Boreas and Notos tend to be powerful, continuous, frequent, as well as whatever other attributes are explained by the flow of air being powerful and blowing without interruption.

As I indicated earlier, Theophrastus is here (and in the previous line) not simply explaining a seeming paradox about Boreas and Notos, but explaining the differences in winds generally. Specifically, he is describing the means by which to explain why any wind is great or small, continuous or intermittent, frequent or infrequent, and perhaps some other attributes as well. This is clear, because in §3 he turns to explaining why any wind (not simply Boreas and Notos) is hot or cold, and in §4 he explains why winds are (or are not) rainy, wave-like (i.e. gusty), dense, continuous, etc.<sup>117</sup>

I was tempted to replace the manuscripts' τὰ τε μέγεθῃ with τό τε μέγεθος, given the singular ἡ συνέχεια and τὸ πλῆθος. Τὸ μέγεθος appears elsewhere four times in *On Winds* (§§ 4, 7 [bis], 8; cf. 50), and it may well have been what was originally written here as well. But the plural (which I translate 'their magnitudes') does work here in a way that the plurals of ἡ συνέχεια<sup>118</sup> and τὸ πλῆθος would not.

That πλῆθος refers in this context to frequency, see above p. 101.

van Raalte and Rademaker have argued<sup>119</sup> that ἄλλο τοιοῦτόν ἐστιν should be emended to <εἴ τι> ἄλλο τοιοῦτόν [ἐστιν], on the grounds that εἴ τι ἄλλο τοιοῦτόν is a common formula in Aristotle and Theophrastus, in precisely the same sort of context: referring to any other items (of what has been listed or discussed), *if* in fact there are any others.<sup>120</sup> Inserting <εἴ τι> is an attractive

116 I think it necessary to accept Turnebus' emendation ἀφ' for the manuscripts' ἐφ' (perhaps a scribal error, influenced by the ἐφ' in the previous phrase).

117 I assume the explanation in §4 of some of these attributes is in some cases offered in addition to those given in §2. For surely, what he has said about the influence of the sun on wind must play some role in a complete account of whether a wind is rainy, wave-like, dense, continuous, regular.

118 Coutant prints συνέχεια without ἡ, but does not refer to the omission in his *apparatus criticus*. I assume it is a typographical error and not a suggested emendation or inaccurate reporting of the manuscript readings.

119 In unpublished notes to *On Winds* 1–3 (see above p. ix).

120 They present, as examples, Thphr. *CP* 3.10.3, 5.5.3, 6.19.4, and Arist. *Top.* 3.1.116b4. It is worth making clearer just how common this formula is. It appears: nine times in Aristotle; three times in inauthentic works attributed to Aristotle (once each in *Magna Moralia*, *Problems*, and *Melissus*, *Xenophanes*, *Gorgias*); and, nine times in Theophrastus (*Vert.* 8.3, *HP* 9.1.4, *CP* 1.11.1, 2.11.1, 2.19.1, 4.2.1, 5.4.3, 5.15.1, 6.19.4). And this does not include similar formulae: e.g. εἴ τι ἄλλο without τοιοῦτόν, which is more common in Theophrastus (over 20 occurrences,

suggestion, worthy of consideration—though one need not delete ἐστιν.<sup>121</sup> I would have accepted the suggestion had I thought that Theophrastus believed it was an open question whether there were any other such attributes, i.e. those explained by the motion of the sun thrusting out air. But I think we can be nearly certain that he believes there are such other attributes.

### *On Winds 3*

Theophrastus here discusses the connection between the temperature of winds and their locations (i.e. of their origins). This at first seems straightforward: Boreas is a cold wind and Notos a hot one because it is cold in the north and hot in the south. These facts are certainly relevant. But he soon makes it clear that the connection is much more complicated than this, as other factors are involved: whether the winds are traveling through narrow passages or open spaces, and even (in a sense) the relativity of perception on the part of people living in various locations reporting their impressions of the temperature of winds.

ἡ δὲ ψυχρότης καὶ θερμότης ἐμφανέσταται δόξαιεν ἂν εἶναι διὰ τοὺς τόπους γινόμεναι· ψυχρὰ γὰρ τὰ πρὸς ἄρκτον, τὰ δὲ πρὸς μεσημβρίαν ἀλσεινά.

The initial δέ here is answering the μέν in μεγάλοι μέν γὰρ ἄμφω καὶ πλείστον χρόνον πνέουσι: Theophrastus has discussed two attributes (power and prevalence) that these opposite winds (Boreas and Notos) have in common, and in doing so he offered an account of these and related attributes in winds generally; now, however, he turns to explaining *opposite* attributes (hot and cold) in these opposite winds, and again in doing so he gives an account of temperature in winds generally. A related contrast is that while he explained the earlier set of attributes with reference to the movement of the sun, he claims the cause of hot and cold in winds is (or seems to be) location (a causal factor emphasized at the outset of § 2).

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e.g. *CP* 3.10.3), or εἴ τι τοιοῦτόν ἕτερον (which occurs twelve times in Aristotle and ten in Theophrastus), or even εἴ τι ἄλλο τοιοῦτόν ἐστι (on which, see the following note).

121 The generally rare εἴ τι ἄλλο τοιοῦτόν ἐστι is found three times in Aristotle (*HA* 5.8.542a11, 7(8).2.589a33, *GA* 5.3.781b35), once in *Magna Moralia* (1.8.1186b1–2), and once in Theophrastus (*CP* 5.5.3). Its three other occurrences are all later than the 3rd century AD. In the present passage, however, I do not consider ἄλλο τοιοῦτόν ἐστιν to be a unit, but take ἐστιν with ἀφ' ὧν: 'from which are' or (more smoothly in this context) 'from which come'.

The claim that the source of hot and cold in winds seems obviously to be location is easily supported: for (γάρ) in the north (whence Boreas blows) it is cold, and Boreas is considered a cold wind; and in the south (whence Notos blows) it is hot, and Notos is considered a hot wind. So the explanation of the temperature of winds *seems* straightforward. But we are told immediately in what follows that this is not the case.

On hot and cold in *On Winds*, see §§ 7, 14, 19–25, 35, 38, 40, 42–43, 46, 48–49, 54, 57, 60. On the complexities involved in explaining temperature in winds, see especially §§ 19–20.

The relevant passage in Theophrastus' *Metarsiology*, as is so often the case, seems condensed: "Hot and cold winds result from two causes: because of the places from which they come or because sometimes there is much fine and hot vapor and sometimes (much) cold and thick vapor" (13.24–27). The opening of § 3 refers only to the former. Owing to the complexity of what follows, as well as to the terseness of this *Metarsiology* passage, it is unclear the extent to which what is presented in *On Winds* can be said to match "sometimes there is much fine and hot vapor" etc.

Re. δόξαιεν ἂν εἶναι: Theophrastus on other occasions uses δόξαιεν (or δόξειεν) ἂν in explaining the causes of certain natural entities or phenomena, to indicate either that what would seem to be the case needs to be qualified, or is in fact not the case. In *HP* 1.4.2, he says that differences in locations (τοὺς τόπους) would seem to produce (δόξαιεν ἂν ... ποιεῖν) the means for classifying plants (e.g. into aquatic plants and those on dry land); but the next chapter (1.4.3) begins: "However (οὐ μὴν ἀλλά),<sup>122</sup> if one would wish to be precise" (εἴ τις ἀκριβολογεῖσθαι θέλοι), some plants are "common" to both locations "and so to speak amphibious" (κοινὰ καὶ ὥσπερ ἀμφίβια). In *Lass.* 6, he writes that certain treatments for fatigue would seem to be opposites, but in fact they are not opposites (αἱ δὲ θεραπείαι δόξαιεν ἂν ἐναντίαι πῶς εἶναι .... οὐκ εἰσὶ δ' ἐναντίαι).<sup>123</sup> In § 2, however, what seems to be the case will be qualified, not overturned.

On the importance in *On Winds* of location (τόπος) in explaining the attributes of winds, see especially §§ 4–9, 21–25, 29–30, 44–45, but also §§ 10, 12, 14, 33–34, 37, 41–42, 51. Introducing the topic of wind in *Mete.* 1.13, Aristotle objects to "some of those wishing to speak in a clever way, who say that all the winds are one wind" (τῶν σοφῶς βουλομένων λέγειν τινὲς ἓνα φασὶν ἄνεμον εἶναι πάντας τοὺς ἀνέμους); in fact, this supposed one wind "seems to differ

122 Denniston (1950, 28) writes that οὐ μὴν ἀλλά "normally denotes that what is being said cannot be gainsaid, however strong the arguments to the contrary."

123 See also *HP* 1.5.4–5 & 1.6.8.

without differing because of the locations from which (the air) happens to flow on each occasion" (δοκεῖν δὲ διαφέρειν οὐδὲν διαφέροντα διὰ τοὺς τόπους ὅθεν ἂν τυγχάνῃ ῥέων ἐκάστοτε), just as if all rivers were in fact one river (349a20–26). Theophrastus seems (to some extent) to agree with Aristotle,<sup>124</sup> which would in part account for the complexities that follow in explaining the temperature of Boreas and Notos (and of various other winds), despite the initial apparent simplicity (e.g. Boreas is cold because the north is cold).

τὸ δ' ἄφ' ἐκατέρου ῥέον ὁμοιον· ἅμα γὰρ καὶ ἦττον ἐν ἀναπεπταμένῳ τῷ σύνεγγυς καὶ ἐν ἀναπεπταμένῃ φορᾷ. τὸ δὲ διὰ στενοῦ καὶ σφοδρωτέρως φερόμενον ψυχρότερον, (τὸ δ') εἰς τε τὸ πόρρω διασκεκαυμένον μᾶλλον καὶ ἀνειμένον.

Perhaps owing to the complexity of explanation, it is difficult to make sense of this passage and the text is almost certainly corrupt (and has been much emended by editors). I think the clearest way to proceed here is to present what I have concluded is likely intended in the passage, and then attempt to explain the details and complexities of the text.

Theophrastus wants to convey that it is incomplete or too simplistic to explain the temperature of winds simply in terms of the temperature of the location from which they come. That is one, but not the only, relevant factor related to temperature and location. Another is how compact or diffuse the flow of air is as it moves away from its location of origin in conjunction with the fact (as the Peripatetics saw it) that air is colder the more compact it is.<sup>125</sup>

Consider Boreas: The sun pushes air northward, which collects in the north (presumably in the Arctic, near the pole) and becomes denser and cloudier (and as this is the north, it is colder for that reason as well). At a certain point, it changes direction<sup>126</sup> and returns, southward in the direction of the 'vacuum' that was created by the sun pushing the air north. When it begins to move south, it is compact and so especially cold. But at the same time (ἅμα)—unlike when it was traveling northward—it is now flowing in an increasingly diffused manner (i.e. it becomes less and less compact as it travels south). The flow of air becomes warmer than it was in the north, in part because as it travels it spreads out and is less compact and so less cold, though by the time it reaches Greece it

124 On the controversy over whether or to what extent Theophrastus disagrees with the Aristotle-passage just quoted, see below pp. 229–230 (on § 29).

125 See also § 20, and cf. e.g. *CP* 1.8.3, Arist. *GC* 2.2.329b29–31, *Mete.* 1.13.349b23–25, 4.7.383b26–28.

126 It is unclear at what point precisely it changes direction. Perhaps at some point the northbound wind encounters arctic mountains (see pp. 106–107).

is (owing to its northern origin) nevertheless colder than the temperature there (which is why Boreas is considered a cold wind).<sup>127</sup> In some sense the same must be true (*mutatis mutandis*) of Notos, though this case is more complex. (I discuss it at length shortly.)

Re. τὸ δ' ἄφ' ἑκατέρου ῥέον ὁμοιον: The main interpretive issue here is whether to accept ἑφ' ἑκατέρον with the manuscripts (in the direction of or toward each location) or Turnebus' suggestion ἄφ' ἑκατέρου (from each location).<sup>128</sup> I think that what follows—and especially the line τὸ δὲ διὰ στενοῦ κτλ.—makes more sense if ἄφ' is the correct reading, as the transition from less open to more open (i.e. more compact to less so) occurs when the wind is traveling *from* the north or *from* the south.

It is most natural to take ὁμοιον to mean that the air flowing from each region is similar to the temperature of that region, but that is hardly supported by the γάρ clause that follows. Perhaps Theophrastus is saying that what is flowing from each region is similar to each other—that is, wind flowing from the north and from the south—in this respect: that it is colder when it is more compact, etc. Or perhaps he is saying that as wind moves from the north to the south, the temperature of the wind becomes similar to that of the south (i.e. warmer); and, that as wind moves from the south to the north, the temperature of the wind becomes similar to that of the north (i.e. colder).

Re. ἐν ἀναπεπταμένῳ τῷ σύνεγγυς: I believe van Raalte and Rademaker's suggested emendation (ἀναπεπταμένῳ)<sup>129</sup> makes more sense than either the manuscript reading (ἀναπεπταμέναι)<sup>130</sup> or the two other editorial suggestions I am aware of (ἀναπεπταμένη [Turnebus], and ἀναπεπταμένον followed by τό in place of τῷ [Furlanus]).<sup>131</sup> I take Theophrastus to be saying that when the

127 Its becoming warmer (than it is in the arctic) must also be a function of the fact that the region over which it is traveling becomes warmer.

128 Turnebus translates this *utrinque* (1600, 2: 42). Note that Schneider (1821, 4: 681) writes *Ego cum marg. Vasc. ἄφ' ἑκατέρων scripsi*, which is interesting as ἄφ' ἑκατέρων is the reading of Anon. Cf. “from either quarter” (Wood) and “from the respective lands” (Coutant).

129 In unpublished notes to *On Winds* 1–3 (see above p. ix). Gigon had earlier made the same suggestion.

130 No editor—from Aldus to Coutant—has accurately recorded the reading of ms. A, which is: ἐν ἀναπεπταμέναι. The Aldine prints ἐναναπεπταμέναι, which is either a mistake or an emendation. (I can now add that Gigon is an exception.)

131 These are all perfect passive participles of ἀναπετάννυμι (LSJ s.v. *spread out, unfold ...* in pf. pass., *to be open, lie open*), as is the ἀναπεπταμένη that directly follows. See also §§ 26, 40, 44; and cf. Arist. *Mete.* 2.5.363a16, [Arist.] *Pr.* 23.16.933a29, 26.30.943b6, 26.40.945a1–4, 26.52.946a21.

wind has just left its origin or source (e.g. Boreas beginning to head south)—which I assume is the meaning of τῷ σύνεγγυς (“by virtue of its proximity”)—it is more compact. Theophrastus spells out the significance of this in the next line.<sup>132</sup>

I find ἐν ἀναπεπταμένη φορᾷ of the manuscript tradition awkward but ultimately all right. van Raalte and Rademaker’s suggested emendation—ἀνειμένη for ἀναπεπταμένη (cf. ἀνειμένον a couple of lines later), “in a relaxed” motion—is intriguing, but basically says the same thing (more directly and arguably less problematically). The insertion of μή in this line (suggested by Furlanus and accepted by Schneider, Wimmer, and Coutant) is counterproductive: for as I mentioned above, I take this line to be describing the movement of air that is simultaneously (ἄμα) compact *and* becoming less compact as it moves: what is flowing is “less in the open by virtue of its proximity (sc. to the north or to the south) *and* (it flows) in an open (i.e. diffused) motion.”<sup>133</sup>

The next line (τὸ δὲ διὰ στενοῦ κτλ.) explains the mechanism of change of temperature in a wind that is compact but becoming more diffuse as it moves. Wind that is (or is like) air traveling through a narrow passage (and more intensely because it is compact) is colder—colder than it would be if the air were not moving (in which case it would presumably have the same temperature as the region) or if it were moving with its air more spread out.

It is unclear whether Theophrastus is saying that, in addition to the air in the north being more compact as it begins to move south, it is also moving through more narrow passages (as a geographical feature of the north), or that the reference to traveling through a narrow passage was originally part of an analogy, and the text is incomplete or otherwise corrupt. The only possible evidence of the former I know of is *Pr.* 26.52, which claims (in a similar context, though discussing Zephyrus) that “the regions toward the north and the south are mountainous” (τὰ μὲν γὰρ πρὸς βορέαν καὶ νότον ὀρεινά, 946a28).<sup>134</sup> If this is what Theophrastus is referring to, then he is saying that the air is even more compact—and thus colder—than it would have been as a result of being pushed there by the motion of the sun, owing to the mountains in the north.

The text indicating the transition between the clause beginning τὸ δὲ διὰ στενοῦ, and the one following it, is problematic. The reading of ms. A (εἷς τε

132 It may be more natural to take ἐν ἀναπεπταμένῳ τῷ σύνεγγυς as a unit—“in a proximity that is open”—but that is more difficult to make sense of in context.

133 Gigon recommended bracketing ἐν ἀναπεπταμένη (on grounds of dittography) and inserting βίαιος (*exempli gratia*) before ἡ φορᾷ.

134 Cf. *Pr.* 23.16.933a28–33 (= 26.30.943b5–9), which claims that winds blowing over rivers are colder than those blowing over open seas, because rivers are in narrower areas.

τὸ) is not only highly compressed, but fails to mark what seems to me to be a necessary contrast: “what is traveling through a narrow passage ... is colder, *and into the distance is*” etc. The scribe of ms. H thought something needed to be done about the overly compressed nature of the text, and so (perhaps reluctantly) emended it by adding τὸ δὲ before it,<sup>135</sup> which yields: “what is traveling through a narrow passage ... is colder, ⟨but⟩ also ⟨the⟩ (wind traveling) into the distance is” etc. I accept this reading.<sup>136</sup>

One expects Theophrastus to say in the second clause that the flowing air moving into the distance by contrast is more open or spread out and so hotter. But what he does say (according to the manuscripts) is διακεκαυμένον μάλλον καὶ ἀνειμένον (ἀνειμένον corrected to ἀνειμένον in the Aldine): “more heated up and relaxed.” This is surprising, for two reasons. First (and this is a minor point), one might expect the order to be different: “more relaxed and (so) heated.” Second (and more important), διακεκαυμένον is not simply another way of saying ‘hotter’: it suggests that the moving air is being heated (I assume by the warmer temperature of the region into which it is flowing as it proceeds south), and so is becoming much less cold than it was in the north—and not simply owing to being relaxed (i.e. less compact). Now Theophrastus does maintain that the temperature of a region acts on or affects the wind flowing over it; but it is somewhat surprising for him to be making that claim *here*. I assume this is why Schneider suggested reading διακεχυμένον for διακεκαυμένον: ‘dispersed’ in place of ‘more heated up’ (or ‘heated through’).<sup>137</sup> Both verbs are well attested in Peripatetic writings (especially διαχέω);<sup>138</sup> moreover, the emendation is quite minor (replacing -κα- with -χ-). The downside is that the clause becomes redundant (“more dispersed and relaxed”) and says nothing about temperature, which would require more radical revision. So I think it best to leave the text as it is.<sup>139</sup>

<sup>135</sup> Reluctantly, if the subscript dots in that ms. are the scribe's and not a later addition.

<sup>136</sup> Turnebus recommended changing τε to δέ in ms. A's εἰς τε τὸ.

<sup>137</sup> Gigon wants to retain both: εἰς δὲ τὸ πόρρω (διακεχυμένον) διακεκαυμένον, the former having dropped out on his view owing to haplography.

<sup>138</sup> For διακαίω, see Thphr. *Vent.* 21, as well as *CP* 3.20.5 [bis], 6.17.6, Arist. *Mete.* 1.8.345a17, [Arist.] *Pr.* 12.3.909b12, and [Arist.] *Mu.* 2.392b7. For διαχέω, see Thphr. *Vent.* 3, 26, 41, 58, *HP* 3.18.6, *Ign.* 18, and (a small sample from the *corpus Aristotelicum*) Arist. *Mete.* 2.5.362b35, 3.1.370b6, and [Arist.] *Pr.* 25.18.939b17, 26.35a.944a32, 26.49.946a1.

<sup>139</sup> At one point I entertained accepting Schneider's emendation and replacing ἀνειμένον with ἄλεινόν ('warm'). But that raises the question of how διακεκαυμένον μάλλον καὶ ἀνειμένον could be a corruption of διακεχυμένον καὶ ἄλεινόν.



διὸ καὶ ὁ νότος ἐκεῖ ψυχρότερος ἢ παρ' ἡμῖν· ὡς δέ τινές φασὶ καὶ μᾶλλον ἢ βορέας.

'There' (ἐκεῖ) is Libya and Egypt, and particularly the mountain ranges to the south, whence Notos winds originate (see above p. 107); 'with us' of course refers to Greece.

Theophrastus can now solve what was an *aporia* in Peripatetic meteorology and among people generally: Why is Notos, which is considered the hot wind, colder in the region where it originates (which is hot as well)?<sup>140</sup> That the flowing air is colder when more compact, and warmer when more spread out, accounts for why *both* Notos and Boreas winds are colder at the beginning, i.e. where air pushed by the sun accumulates and is compacted before returning in the opposite direction. This conclusion follows logically from Theophrastus' account of the nature of wind. A secondary reason for the coldness, I assume, is the cold temperature in the mountains where the winds originate.<sup>141</sup> Notos is warmer by the time it reaches 'us', however, because of its being more dispersed as it travels *and* because of its flowing over hotter regions.<sup>142</sup>

It is unclear how seriously Theophrastus takes "what some people say"—that Notos is even colder there—beyond its support for his contention that both Notos and Boreas are colder at their origins. One would think that, according to Theophrastus' conception of wind, for Notos to be *even* colder, the mountains from which they come would have to be even colder than the North Pole/Arctic Circle, and I see no evidence that he (or Aristotle or anyone else) believed that—and it would have been strange if they did. (I have more to say on this in the following section.)

As it is obviously connected to our passage, and functions as something of a summary tying it to the rest of § 3, I quote *Pr.* 26.49 in full:

Why are Notos winds cold in Libya, just as Boreas winds are with us? Is it primarily because the sources of these winds are in the one case nearer to

140 Coutant & Eichenlaub (1975, 67): "What may have given rise to this notion is the fact that in winter the northern African desert is cool and supplies relatively cool air to the warm sectors of depressions. Compressional heating along the Libyan coast and travel across the warmer Mediterranean may make them appear as warmer winds when they arrive in Greece."

141 Cf. an otherwise perplexing statement in § 8: "Egypt in its lower (i.e. northern) regions is hollow, so that (Notos) passes over it, but its upper (i.e. southern) regions are higher."

142 On the latter point, cf. *Pr.* 26.16.942a12–13: Notos "is hot because the wind mingles with the Libyan air, which is hot" (θερμός δέ ἐστι διὰ τὸ μίγνυσθαι τὸ πνεῦμα τῷ κατὰ Λιβύην ἀέρι θερμῷ ὄντι).

us, in the other to them? For if, as we have said, the winds come through a narrow passage, they will be colder to those who are nearer, owing to the violence of their movement; for when the movement advances into the distance, they are dispersed. And this is why Boreas winds are cold with us, because we live nearer and altogether towards the arctic.<sup>143</sup>

As indicated earlier, the reference to a narrow passage may refer (in some way) to wind traveling through the mountains (in this case, the Aethiopian mountains in southern Libya, which are the source of the Aegon and Nyses rivers; see Arist. *Mete.* 1.13.350b10–12).<sup>144</sup>

ποιεῖ δέ τι καὶ ἡ μεταβολὴ πρὸς φαντασίαν, ἀλλεῖ(νου) προὔπαρχόντος τοῦ τόπου.

Much in the terse final line of §3 is not entirely clear: What is the change that produces something? Likely the change in Notos, as it becomes warmer. And what is produced? Something having to do with φαντασία (however that is understood here), and so with how people perceive Notos or the change in the temperature of Notos. And to which location that is warm already or as such is Theophrastus referring? Likely Libya and Egypt, though Greece is a warm location as well.

I take this line to be an explanation of ὥς δέ τινές φασὶ καὶ μᾶλλον ἢ βορέας in the previous sentence. Theophrastus' account can explain why Notos is colder in the hotter regions from which it comes than it is by the time it reaches Greece (which is not as hot), but (as I indicated) it cannot explain (if it were true) Notos being *colder* at its origin than Boreas, which is how things are according to some people. I think it possible that the sentence ποιεῖ δέ τι καὶ ἡ μεταβολὴ κτλ. is saying that although Notos and Boreas are both (roughly equally) cold at their places of origin, the former might *seem* even colder—even as its temperature gradually becomes warmer—when felt by people in southern climes, because

143 Διὰ τί οἱ νότοι ἐν τῇ Λιβύῃ ψυχροί, ὥσπερ παρ' ἡμῖν οἱ βορέαι; ἢ πρῶτον μὲν διὰ τὸ ἐγγυτέρω εἶναι ἡμῖν τε κακείνοις τὰς ἀρχὰς τῶν πνευμάτων; εἰ γάρ, ὥσπερ εἶπομεν, διὰ στενοῦ γίνεται τὰ πνεύματα, τοῖς ἐγγυτέρω ψυχρότερα ἔσται διὰ τὴν σφοδρότητα τῆς κινήσεως· εἰς γὰρ τὸ πόρρω προΐουσης διαχεῖται. διὸ καὶ παρ' ἡμῖν οἱ βορέαι ψυχροί, ὅτι ἐγγυτέρω καὶ παντελῶς πρὸς τῇ ἄρκτῳ οἰκοῦμεν. *Pr.* 26.16 asks, as a second of two opening questions: why are Notos winds “as cold to those in Libya as Boreas winds are here?” (τοῖς ἐν Λιβύῃ ὁμοίως ψυχροὶ ὥς οἱ βορέαι ἐνταῦθα; [942a7–8]). The answer given is unrelated to anything in §3 or *Pr.* 26.49.

144 It is thus surprising to read, in §25, Theophrastus claim emphatically that “there are absolutely no breezes from a single one of the rivers in Libya” (τῶν ἐν τῇ Λιβύῃ ποταμῶν οὐδ' ἄφ' ἐνὸς αὐραὶ οὐδαμῶς). But then breezes are something quite apart from Notos winds.

of the starker contrast between the cold of the wind and the warmth of the region (compared to how Boreas is experienced in the north). This appears to be how Wood understands the line: “But the change [in its temperature] makes itself more appreciable as the place is warm to begin with” (brackets in the original).<sup>145</sup>

In addition to explaining why people might *think* Notos in the south is even colder than Boreas in the north, Theophrastus could also be making a more substantive point: He began § 3 with a straightforward claim: hot winds are explained by hot locations, cold winds by cold locations. He then immediately stresses the fact that although this is part of the story, the full or actual connection between location and temperature is much more complex. Here he is arguably adding one more complication: relevant to our experience of the temperature of the wind is how similar or different it is from the local temperature of the person feeling the wind.

Re. ἡ μεταβολή:<sup>146</sup> Like Wood, quoted above, I take this to be referring to the change in temperature of the wind (specifically Notos). Bonaventura (1593, 93) thinks we should assume an implied τοῦ ἄερος, the change *in the air*, but this amounts to the same thing. In any case, I find ἡ μεταβολή an unexpected word-choice, as something like ἡ διαφορά (referring to the difference in temperature or in how the temperature is perceived) would seem to be a better fit.

In addition to its occurrence in § 3, φαντασία appears only nine times in the surviving works of Theophrastus, and in every case it is used to contrast what appears to or is experienced by a person with what is in fact the case. *HP* 9.11.2: drug-induced madness produces certain delusions (φαντασίας τινάς); *CP* 2.16.5: the change or mutation (ἡ μεταβολή) observed in a certain plant is merely apparent (κατὰ φαντασίαν); *CP* 5.1.6: the concoction of juice does not really occur in a certain plant, merely the illusion (ἡ φαντασία) of concoction; *Od.* 54: the claims by certain people concerning the odors of various perfumes are illusions and not truths (φαντασίαι καὶ οὐκ ἀλήθειαι), owing to how used to the odors the people are and not to the nature of the perfumes themselves; *Lap.* 60: some of the products of art are useful (τὰ μὲν χρήσεως χάριν), while others (e.g. paints) are merely for show (τὰ δὲ μόνον φαντασίας); *Sens.* 63, 64, & 74: according to Democritus, what is presented to a person in perception is not fully real but φαντασία. (Cf. *Pr.* 26.12.941b19–23.) This confirms my reading of the text: the

145 Cf. Coutant: “The change adds to the sensation if the place was warm already.”

146 Coutant (1975, 4) prints μεταβολή without ἡ, but does not refer in his apparatus to this omission. I assume this is a typographical error and not a suggested emendation or inaccurate reporting of the manuscript readings.

‘change’ referred to at the end of § 3 is not real but an apparent difference in relative temperature, and that is what Theophrastus wants to explain.

Re. ἀλλεῖ(νοῦ) (Furlanus’ sensible revision of ms. A’s meaningless in context ἀλλ’ εἰ): The word invariably refers to a warm or sunny location or season or day. According to LSJ (s.v. ἀλλεῖνός) it means *lying open to the sun, warm, hot*.

### *On Winds 4*

Setting aside the first line, which is transitional, and despite a number of textual problems, Theophrastus’ purpose in § 4 is quite clear. He lists several attributes that are dependent not (simply) on location, but on the wind’s distance from the location of its origin—so that, for example, a certain wind will be rainy in one location but not in another. That each of these characteristics involves the nature of the wind itself *and* its relationship to its location of origin may indicate (or likely does) that they are differentiae that are not capacities.

After making a general claim about the importance of distance from location, Theophrastus focuses in the remainder of § 4 on one pair of opposite attributes, namely, whether a wind is clear or rainy (or cloudy). Once again, Boreas and Notos are paradigm cases.

καὶ τοῦτο μὲν κοινὸν ὡς εἰπεῖν πᾶσιν.

If there were no μὲν in this sentence, I would take the line to be referring to the point, just made (in § 3), about the relativity of our perception of the temperature of winds. But as there is a μὲν, with an answering δέ in the following sentence, I take it to be making a general summarizing point and acting as a transition between the content of § 3 and § 4.<sup>147</sup> Theophrastus is saying that this (τοῦτο)—the connection between location and temperature—is common to all winds, and not simply true of Boreas and Notos. Now he will discuss a set of characteristics of winds that are a function not simply of location, but “are better explained with a view to the *distance* of the locations” (πρὸς τὴν ἀπόστασιν τῶν τόπων ἀποδίδεται μᾶλλον).

The ὡς εἰπεῖν in this line qualifies or tempers the absolute character of πᾶσιν. This is a common formulation in Theophrastus: there are nearly fifty instances

<sup>147</sup> Schneider made this the opening line of § 4, though it works just as well (if not better) as the final sentence of § 3. Cf. e.g. the transitions between *HP* 9.6.4 & 9.7.1, and between Arist. *Phys.* 1.5 & 1.6. (As I regard §§ 2–6.45 as a unit, and present it as such in my text and translation, the placement of this line [in § 3 or in § 4] is unimportant.)

in his botanical works alone of ὡς εἰπεῖν with some form of πᾶς or ἅπας (e.g. *CP* 1.19.2, *HP* 1.2.6).<sup>148</sup>

τὸ δὲ ὑέτιον καὶ αἶθριον ἑκατέρου καὶ τὸ κυματῶδες καὶ ἄκυμον καὶ πυκνὸν καὶ συνεχὲς καὶ ἀνωμαλὲς καὶ ὁμαλόν, ἔτι δὲ τὸ μέγεθος τοῦ μὲν ἀρχομένου, τοῦ δὲ λήγοντος, πρὸς τὴν ἀπόστασιν τῶν τόπων ἀποδίδοται μᾶλλον.

I begin somewhat out of order with a brief comment on ἑκατέρου, before discussing each attribute or pair of opposite attributes in turn. Like Schneider and Coutant, I see no reason to emend the manuscript reading (ἑκατέρου): “for each (wind)”. I do not understand the appeal of the Aldine emendation (ἑκάτερον), accepted by Grynaeus, Vascosanus, Camotius, Furlanus, Heinsius, and Wimmer. Turnebus emended Vascosanus’ ἑκάτερον to ἐκατέρων, which is a good suggestion for one starting with ἑκάτερον; but it is not an improvement over the manuscripts: ‘for each wind’ and ‘for each of the winds’ come down to the same thing; and ‘either of the winds’ (if it is meant to refer to Notos and Boreas) is too narrow.

Re. ὑέτιον καὶ αἶθριον: Rainy and clear are opposite attributes of wind. It is not entirely clear whether ‘rainy’ is a synonym of ‘cloudy’ or whether they are instead rather intimately connected concepts. Theophrastus seems to use the terms interchangeably: §§ 4 & 7 (“cloudy and rainy”, ἐπινεφῆς καὶ ὑέτιος); §§ 8 & 51 (“cloudy or clear”, ἐπινεφῆ καὶ αἶθρια); § 11 (“clear and cloudless”, αἶθριοι ... καὶ ἀσυννεφεῖς). Theophrastus discusses whether winds are rainy or clear in the remainder of § 4, and in §§ 5 & 7. He mentions or discusses the formation of clouds in §§ 1, 6–7, 60–61. See also Thphr. *Metars.* 7 (on the causes of clouds) and 8 (on the causes of the different kinds of rain).

Re. κυματῶδες καὶ ἄκυμον: A wind being wave-like has nothing to do with its producing waves in bodies of water, but with coming or blowing in waves, so to speak. Coutant renders this “gusty or steady,” which is its basic meaning; and I following him in translating κυματῶδες καὶ ἄκυμον “wave-like or waveless (i.e. gusty or steady).” A wind that is waveless blows continuously. This pair of opposites is not included in the lists of attributes in §§ 1 & 2, I assume because being wave-like or not—gusty or steady—can be reduced to or explained in terms of other, more basic, attributes. To put it another way, this pair is a further description or characteristic of *regularity*: a wave-like wind is regular but not

148 It is quite common in Aristotle as well. Of particular interest here is *EE* 1.2.1214b19: κοινὰ πάντων ὡς εἰπεῖν.

continuous;<sup>149</sup> a waveless wind is regular and continuous. See § 6, which opens with the claim that Notos, in certain locations, “produces more of what is dense and waveless (i.e. steady) and continuous and regular.” This pair of opposites is not mentioned outside of §§ 4 & 6.

Re. πυκνὸν καὶ συνεχές: Out of context, it is most natural to read πυκνὸν καὶ συνεχές as a pair of opposites, but they certainly are not (as the line from § 6 just quoted makes clear). What Theophrastus is presenting is (at least by implication) a list of six pairs of opposites, with πυκνὸν καὶ συνεχές representing *two* of the pairs. This is why I was so bold as to amplify my translation: “dense (or not) and continuous (or not).” The basic meaning of πυκνός is ‘thick’ or ‘compact’ or ‘solid’, though it has a secondary meaning “of a repeated action, *frequent, numerous ... continuous*” (see LSJ s.v. 11 2). This latter meaning is never found in *On Winds*, however, as Theophrastus has other terms to convey frequency and continuity. For the use of πυκνός and its cognates in this work, see §§ 6, 7, 25, 35, 58, 59. In § 35, density is contrasted with rarity (κατὰ πυκνότητα καὶ μανότητα). One would expect density and rarity to be connected to whether a wind is cloudy or clear, but much remains uncertain. In *On Winds*, the opposite of συνεχής is the present participle active of διαλείπω, which I translate ‘intermittent’ (see §§ 1 & 12). Being continuous is twice contrasted with κατὰ μικρόν (‘little by little’, §§ 19 & 35), which I assume is one kind of intermittency. Continuity is associated with density (see § 6)—which may be why they are presented together in the list in § 4—and with greatness or power (§§ 2 & 12). In light of all of this, I think that the previous English translations are wrong on two counts, (1) treating πυκνὸν καὶ συνεχές as a pair of opposites and (2) taking πυκνόν to refer to how often the wind blows: Coutant, “frequent or continuous”; Wood, “recurrent or continuous”.

Re. ἀνωμαλές καὶ ὁμαλόν: In the list in § 1, this pair of opposites is associated with continuity and intermittency (καὶ συνεχεῖς καὶ ὁμαλεῖς ἢ διαλείποντας καὶ ἀνωμαλεῖς). Cf. the opening of § 6, quoted above, which connects the regular with what is dense, waveless, and continuous. In § 41, regularity and continuity are connected; in § 43 regularity and softness (ἡ ὁμαλότης καὶ λειότης). In § 12, irregularity is associated with weakness, intermittency, and lack of continuity; in § 55, it is associated with what is disorderly (ταραχώδη). In § 12, there is a relatively lengthy discussion of the cause of irregularity (τῆς ἀνωμαλίας αἴτιον) in the Etesians. The line from which this pair comes is a string of neuter singular adjectives (with τό), so there is no reason to emend the manuscripts’ ὁμαλόν

149 My hesitation in translating κυματώδες ‘gusty’ is the sense that this does not suggest regularity.

(nom. ὁμαλός). Turnebus' ὁμαλές, from ὁμαλῆς, may well be right, as it is more consistent with related usage from the rest of *On Winds* (e.g. ὁμαλεῖς § 1, ὁμαλές § 6); but it is not in fact necessary.<sup>150</sup>

Re. τὸ μέγεθος τοῦ μὲν ἀρχομένου, τοῦ δὲ λήγοντος.<sup>151</sup> Greatness or power is mentioned in the lists of attributes in §§ 1 & 2; here, however, Theophrastus is talking not about a wind's power *per se*, but about a wind being powerful *when it begins or when it ceases* (more on what that might mean shortly). In § 2, Theophrastus says that both Boreas and Notos “are powerful and blow most of the time”; but in § 5, in his only account of this pair of opposite attributes, he says that “Boreas is powerful as soon as it begins, whereas Notos is (powerful) when it ceases” (though this is reversed in southern lands, or at least in Egypt). So I take it that this pair of attributes, where applicable, is relative to the basic capacities of the wind: e.g. Boreas is powerful, but especially so at the beginning (in the north).

I turn now to the final phrase of the passage, which refers to all of the previous pairs of attributes: πρὸς τὴν ἀπόστασιν τῶν τόπων ἀποδίδεται μᾶλλον (“are better explained with a view to the distance of the locations”). The manuscripts give us πρὸς τὴν ἐπίστασιν τῶν τόπων ἀποδύει μᾶλλον, which I cannot make sense of (nor, it seems, have other editors been able to). The problems are ἐπίστασιν (‘stoppage’) and ἀποδύει (‘strip off’). I think Furlanus’ emendation—ἀπόστασιν (which can mean ‘distance’)<sup>152</sup> for ἐπίστασιν—makes perfect sense.<sup>153</sup> The Aldine reading of ἀπολύει (‘let loose’) for ἀποδύει is paleographically plausible, but still makes no sense; nor does Turnebus’ ἀποκλίνει, which with πρὸς means ‘incline toward’. (And note that neither Aldus nor Turnebus emends ἐπίστασιν). A clue to the right reading (or best guess at such) was first provided by Bonaventura (1593, 94): *fortasse ἀποδίδοι*—though Furlanus is right that the passive is needed (ἀποδίδεται). I take ἀποδίδεται with πρὸς here to mean ‘are explained with a view to’ (the distance of the locations).<sup>154</sup> And this is precisely how Theophrastus proceeds to explain the pairs of opposites mentioned prior to this phrase.

150 Wimmer's ὁμαλὸν is Byzantine Greek, and rare, and I assume a typographical error.

151 The manuscripts give us ἐρχομένου, but Turnebus' emendation (ἀρχομένου) is surely right, as the relevant line from § 5 makes clear (ὁ βορέας εὐθὺς ἀρχόμενος μέγας).

152 BDAG s.v. ἀπόστασις [B]: “detachment, remoteness, distance.” See also LSJ s.v. ἀπόστασις 1. B. 5.

153 Forms of ἐπίστασις appear in two (other) places in Theophrastus (*Vert.* 9, *CP* 2.9.1); ἀπόστασις is a bit more common (*HP* 2.5.6, *CP* 3.7.2, 6.17.1, *Ign.* 43, *Metaph.* 9b26, 11b1) and does appear elsewhere in *On Winds* (§ 30).

154 LSJ (s.v. ἀποδίδωμι) I 11: “give an account or definition of a thing, explain it.”

ὅθεν μὲν γὰρ ἕκαστος πνεῖ, παρ' ἐκείνοις αἶθριος· ὅπου δ' ἐπωθεῖ τὸν ἀέρα, παρ' ἐκείνοις δ' ἐπινεφῆς καὶ ὑέτιος.

Theophrastus next briefly gives the reason (γὰρ) why distance from location of origin alters some of the attributes of certain winds—or at least how this explains the pair of opposite attributes rainy and clear, to which the remainder of § 4 is devoted. Winds tend to be clear at their location of origin: e.g. Boreas in the north. As he explains in § 7, this is because the wind has not had the chance to accumulate and condense air, which creates clouds and ultimately rain. Once the wind has moved a certain distance, and pushed a certain amount of air, it goes from being clear to being rainy. So the same wind can be either (and presumably somewhere in between, perhaps 'cloudy' is the right designation) depending on how far it is from its origin.

Now we seem to have encountered a contradiction or paradox that requires an explanation: In § 3, Theophrastus says (or seems to say) that winds (or Boreas and Notos, at any rate) are compact when they begin, but become more diffuse as they move away from their origins. Here he is saying that winds (including Boreas and Notos) are clear (i.e. cloudless, not rainy) at their origins, but cloudy or rainy as they approach their 'destination'. I can only assume that Theophrastus makes a distinction between the air of which a wind consists—which is compact at the beginning, and becomes more diffuse as it travels into the open—and what a wind pushes or carries, which can become condensed (eventually producing clouds and rain) even as the wind itself becomes more diffuse.

Re. ἐπωθεῖ: The manuscripts' ἀπαθείς ('unaffected') makes no sense, and was emended by Turnebus to ἀπωθεῖ. But ἀπωθέω means to push or thrust *away* (as it does in § 7, where it appears twice). So of the ὠθέω verbs with prefix, we should rather expect προωθεῖ (forms of which appear thrice in § 35) or ἐπωθεῖ (which is slightly better paleographically). Although ἐπωθέω is rarer, and appears nowhere (else) in Theophrastus, it does occur once each in Aristotle's *Meteorology* (3.1.370b24, in a discussion of whirlwinds) and in the *Problems* (16.8.915a2, describing the pressure of air in a clepsydra).

Furlanus brackets the second δ' and Wimmer omits it. Although I do not quite see what purpose this δ' serves, I find that editors are in general too quick in deleting δέ and I shall (almost) always refrain from doing so. It is worth recalling Denniston's relevant comment: "As a connective, δέ denotes either pure connexion, 'and', or contrast, 'but', with all that lies between" (1950, 162). See also Fortenbaugh (2003, 8–9). I grant the same presumption of innocence to μὲν (see Denniston 1950, 359–386). In the present case, I try in my translation to render this δ' with a somewhat awkwardly placed (and redundant) 'however'.



διόπερ ὁ μὲν βορέας καὶ μᾶλλον οἱ ἐτησῖαι τοῖς πρὸς μεσημβρίαν καὶ ἀνατολὴν οἰκοῦσιν ὑέτιοι·

The Etesian (i.e. ‘annual’) winds are north winds that blow, not most of the time (as the regular Boreas winds do) but during a narrower period every year (i.e., in the summer).<sup>155</sup> As Aristotle explains: “The Etesians blow after the (summer) solstice and the rise of the Dog (Star)” (*Mete.* 2.5.361b35–36)—i.e. they begin to blow in July. The Etesians are discussed at length in §§ 10–14 (and see also § 31).

It is clear why the north winds (Boreas and Etesians) bring rain to those living in the south; but why does Theophrastus mention those living in the east? I assume his perspective is Greece, and that the north winds cover a broad area (the mainland and the islands), whereas to the west there is the sea. (Cf. § 41: “toward the west there is neither mountain nor land, but the Atlantic Ocean.”)

ὁ δὲ νότος (καὶ) ὥστε ἀπλῶς εἰπεῖν οἱ ἐξ ἐκείνου τοῦ τόπου πνέοντες τοῖς πρὸς ἄρκτον.

The point Theophrastus is making applies not only to Notos in particular, but to south winds generally. There is nothing analogous to the Etesians from the south (see § 11 and Arist. *Mete.* 2.5), so I assume Theophrastus is referring to the Lips (a roughly west-by-southwest wind which he discusses in § 51) and the Eurus (a roughly east-by-southeast wind which he discusses in §§ 52–53 & 61). In § 61, he refers to “Notos and Eurus and however many (winds there are) from the south ....”

For the first time we can take advantage of the papyrus fragment of *On Winds* (*POxy* 3721) to correct a difficult text. Ms. A reads: ὁ δὲ νότος πῶς εἰπεῖν ἢ οἱ ἐξ ἐκείνου τοῦ τόπου· (*lac.* 5 *litt.*) πνέοντες τοῖς πρὸς ἄρκτον· In the corresponding lines in the papyrus (col. i, ll. 2–5), there is an omicron followed by a gap of two letters (presumably ΔΕ), then a nu followed by a gap of about six letters (presumably ΟΤΟC plus some other word of 2–3 letters, likely ΚΑΙ), and then ΩC|Τ.ΑΠΛΩC.<sup>156</sup> The rest of the line is the same as in ms. A, except that there is

155 In *Mete.* 2.5, Aristotle refers to Boreas winds “which we call Etesian” (βορέαι ... οὓς καλοῦμεν ἐτησῖας, 362a11–12). On the Etesians, see Hünemörder 2006b. The Geminus *parapegma*, in the entry under the 27th day of Cancer (which month falls in June–July), states: “According to Eudoxus Sirius rises in the morning, and for the next fifty-five days the Etesian winds blow. The first five (days, the winds) are called the *Prodromoi*” (i.e. ‘Forerunners’). (Trans. Lehoux 2007, 233.)

156 Haslam (1986, 174 & 177) reports that what follows ΩC|Τ is probably either an epsilon or an omicron, so that the original was either ὥστε or ὡς τό.

no lacuna between τόπου and πνέοντες.<sup>157</sup> Haslam presents the line as follows: ὁ δὲ ν[ότος καὶ] ὥσ|τε ἀπλῶς εἰπεῖν οἱ ἐ|ξ ἐκείνου τοῦ τόπου | πνέοντες τοῖς πρὸς | ἄρκτον. I accept this reading, though I think one could make the case that ὥς is superior to ὥστε.<sup>158</sup>

### *On Winds 5*

§5 is one of those chapter divisions that leaves one wondering what Schneider was thinking, as the chapter consists of two parts that do not fit together well. In the first part, Theophrastus does not turn to another of the pairs of opposite attributes dependent on distance from location; rather, continuing the discussion at the end of §4, he elaborates on the pair rainy and clear, describing another factor (connected to location, but not to location of origin or distance from it) relevant to whether a wind is rainy or clear: if the region over (or against) which it blows is elevated, it tends to be rainy. In the second part, he discusses the pair of opposites he described earlier (in §4) as τὸ μέγεθος τοῦ μὲν ἀρχομένου, τοῦ δὲ λήγοντος (“whether it is powerful when it begins or when it ceases”). In the original list, he seemed to have in mind winds generally, whereas here he discusses only Boreas and Notos. Whether this pair of attributes applies to these two winds alone, or these winds are simply the paradigm cases exhibiting these characteristics, is not clear.

οὐ μικρὰ δ' ἐνταῦθα ἀλλὰ μεγίστη ῥοπή τὸ τὰς χώρας ὕψος ἔχειν· ὅπου γὰρ ἂν προσκόψῃ τὰ νέφη καὶ λάβῃ στάσιν, ἐνταῦθα καὶ ὕδατος γένεσις.

As we saw in §4, the air a wind pushes becomes more condensed as the wind moves further from its origin, and so as it proceeds it tends to be cloudier and rainier. Theophrastus is here saying that this condensation is amplified when this air or vapor is pushed against hills and mountains and other geological elevations. This causes the clouds to stop and bunch up, so to speak,

157 Haslam (1986, 177): Ms. A “has a three-letter erasure between τόπου and πνέοντες; an insignificant blunder, it is now evident.” I think the lacuna is closer to five letters in length (Coutant’s claim that the lacuna has a length of six letters is characteristically too long). And if the space originally contained ἀνεμοί (suggested by Bonaventura 1593, 94, and a perfect fit), perhaps that was the reading of another manuscript tradition, in which case the gap is not really a blunder. As things stand, however, there is no need to insert ἀνεμοί, as it is implied by οἱ.

158 Cf. the conjecture of Coutant (who was unaware of this papyrus): καὶ ὥς ἀπλῶς εἰπεῖν.

which leads to rain. Theophrastus elsewhere discusses elevation or mountains (see §§ 8, 27, 30, 32–34, 41, 44–45), but not in connection with winds being rainy.

This passage has been much emended by editors; however, with one insignificant exception (see below) there are no variations between ms. A and *POxy* 3721. Haslam comments (1986, 177):

Schneider emended to οὐ μικράν δ' ἐνταῦθα ἀλλὰ μεγίστην ῥοπήν τὸ τῆς χώρας ὕψος ἔχει [...], but the transmitted text is unexceptional (for predicative ῥοπή cf. e.g. *Dem. Ol.* 2.22, μεγάλη γὰρ ῥοπή ... ἡ τύχη), and the noun phrase (τὸ ... ἔχειν) quite in Theophrastus' manner; 'a most important factor here is that the places have height.'

My slightly more 'literal' translation is: "And here, that regions have elevation is not a small but a very great influence." Note, however, that although μεγίστη ῥοπή can be either nominative or accusative, μεγίστην ῥοπήν is the accusative one would expect from Theophrastus: see *HP* 4.11.9 (μεγάλην ἔχει ῥοπήν), *CP* 1.13.12 (μεγάλην ῥοπήν), 3.6.6 (μεγίστην ἔχει ῥοπήν), 4.9.6 (ῥοπήν οὐ μικράν ἔχει); μεγίστη ῥοπή appears nowhere (else) in Theophrastus. In the second clause, Turnebus' emendation of παρακόψη to προσκόψη is certainly correct and is confirmed by *POxy* 3721: προκόψη, which (missing the sigma) Haslam calls "a simple slip."

διὸ καὶ τῶν σύνεγγυς τόπων, ἄλλοι παρ' ἄλλοις ὑέτιοι τῶν ἀνέμων.

Ms. A and *POxy* 3721 give the same reading here.

Re. τῶν σύνεγγυς τόπων: I take Theophrastus to be saying (what is not strictly speaking in the Greek) that *even though* the locations are close to each other, the winds are different if they have different elevations.

*Pr.* 26.56 asks a relevant question, and the entire chapter is worth quoting as the answer to it is perfectly consistent with (and in fact may be based on) what we find in *On Winds*, though applied to particular places not mentioned therein (or at least not in this context, though see § 54).

Why are different winds rainy in different places? For example, in Attica and in the islands the Hellespontias<sup>159</sup> is rainy, in the Hellespont and in Cyrene Boreas, and around Lesbos Notos. Is it that wherever there

159 An alternative name for the Apeliotes. See *Vent.* 62.

is a gathering of clouds, there is rain? For wherever a density gathers, there they must settle. And this is why it rains more in the mountains than where the mass (of clouds) is able to escape; for being confined it condenses. Now this must occur; even in fine weather it rains more. So in the Hellespont, Boreas coming from above pushes together many clouds, while the Hellespontias (pushes them) towards Attica and the islands, as they have the material; and indeed, most of the clouds come round from the north. But around Lesbos, the Eurys and Notos carry many clouds from the open sea and strike them against the land. It is the same way as well in the case of the other winds.<sup>160</sup>

Although its wording is not as close to this passage from §5, the question *Pr.* 26.7 asks is conceptually more closely related:

Why aren't the same winds rainy everywhere? Is it because the same winds do not everywhere blow against (the same) mountains, but different ones lie against different mountains?<sup>161</sup> For instance, when winds flow with difficulty against steep mountains, the clouds are more likely to form there, where wind is unable to push them still further. And when they are formed and subject to pressure, they break.<sup>162</sup>

160 Διὰ τί ἄλλοις ἄλλοι τῶν ἀνέμων ὑέτιοι, οἷον ἐν μὲν τῇ Ἀττικῇ καὶ ταῖς νήσοις ὁ Ἑλλησποντίας, ἐν Ἑλλησπόντῳ δὲ ὁ βορέας καὶ ἐν Κυρήνῃ, περὶ Λέσβον δὲ νότος; ἢ ὅπου ἂν ἄθροισις νεφῶν, ἐνταῦθα ὕδωρ; ἐνταῦθα γὰρ ἡ πύκνωσις ἀθροίζεται, ὅπου ἂν προκαθίζεσθαι ἔχη. διὸ καὶ ἐν τοῖς ὄρεσι μᾶλλον ὕει ἢ ὅπου ἂν τὸ πλῆθος ὑπεξάγειν δύνῃται· περικαταλαμβανόμενον γὰρ πυκνοῦται. δεῖ δὲ τοῦτο γενέσθαι· καὶ ἐν ταῖς εὐδαίαις μᾶλλον ὕει. ἐν Ἑλλησπόντῳ μὲν οὖν ἄνωθεν ὁ βορέας πολλὰ συνωθεῖ νέφη, πρὸς δὲ τὴν Ἀττικὴν καὶ τὰς νήσους ὁ Ἑλλησποντίας, ὥσπερ ὕλην ἔχων καὶ γὰρ περίσταται τὰ πολλὰ ἐκ τοῦ βορέου. περὶ δὲ Λέσβον ὁ εὖρος καὶ ὁ νότος ἐκ τοῦ πελάγους φέροντες πολλὰ νέφη προσβάλλει τῇ χώρᾳ. τὸν αὐτὸν τρόπον καὶ ἐπὶ τῶν ἄλλων.

161 In my Loeb, I followed Flashar (1962, 680) and inserted τὰ αὐτὰ (see the following note). I still believe this is likely correct. But I now think it is also possible that the line originally read ἢ ὅτι οὐχ οἱ αὐτοὶ πανταχοῦ πρὸς ὄρη ἀντιπνέουσιν; (with ἄλλ' ἕτεροι κείνται πρὸς ἕτερα ὄρη being a mistaken gloss): "Is it because the same winds do not everywhere blow against mountains?" That is, unless the author (or Theophrastus) thinks that all winds eventually or somewhere blow against mountains.

162 Διὰ τί οὐχ οἱ αὐτοὶ ἄνεμοι πανταχοῦ ὑέτιοι εἰσιν; ἢ ὅτι οὐχ οἱ αὐτοὶ πανταχοῦ πρὸς (τὰ αὐτὰ) ὄρη ἀντιπνέουσιν, ἀλλ' ἕτεροι κείνται πρὸς ἕτερα ὄρη; οἷον γὰρ πρὸς ἀνάντη μόλις ῥεόντων, ἐνταῦθα ὑφίσταται μᾶλλον τὰ νέφη, οὐ δύναται ἔτι προωθεῖν αὐτὰ ἄνεμος. ὑφιστάμενα δὲ καὶ πιεζόμενα ῥήγνυται.

ἀλλὰ περὶ μὲν ὑδάτων ἐν ἑτέροις εἴρηται διὰ πλείονων.

A number of scholars<sup>163</sup> take περὶ ὑδάτων κτλ. to be an obvious reference to a work by Theophrastus entitled Περί ὕδατος or Περί ὑδάτων.<sup>164</sup> I have my doubts. The texts thought by Fortenbaugh et al. to be associated with this work are 210–221 FHS&G; but of these, the only ones that refer to rainfall (211A–C) do not in my view come from *On Water(s)* but refer to what Theophrastus says about rain in *On Winds*.<sup>165</sup> The ‘fragments’ that include a reference to either of these titles all deal with the nature of river water—its brackishness (212) or potability (213–214)—and most of the remaining texts concern the nature of rivers and the effects of their waters on certain animals. It is of course *possible*—especially if it consisted of three books—that *On Water(s)* contained a discussion of rainwater (a derivative meaning of ὕδωρ); nevertheless, I think it makes sense to look elsewhere for this lengthy discussion περὶ ὑδάτων.

The briefest chapter or section in (the Syro-Arabic epitome of) Theophrastus’ *Metarsiology* is §8, the title of which is “The account of the causes of different kinds of rain.” I quote it in full (Daiber 1992, 267): “Heavy rain occurs, if very hard winds squeeze and accumulate the clouds. Continuous rain occurs, if many vapors ascend from the seas.”<sup>166</sup> Also relevant, and perhaps in part explaining the brevity of *Metars.* 8, is the longer discussion of clouds in *Metars.* 7,<sup>167</sup> which likewise seems to employ in its explanation both exhalations (or vapors) *and* the pushing and condensing of air. For example:

The clouds come into existence for two causes: because of the accumulation and thickness of air and its transformation into the nature of water or because of much vapor which ascends and with which the ascending vapors of the sea as well as the remaining fluids become mixed. Air comes together and becomes mixed for two reasons: because of coldness and because of contrary winds which squeeze it and bring it together.

7.2–6; DAIBER 1992, 266

163 Bonaventura (1593, 95), Schneider (1821, 4: 683), Steinmetz (1964, 28), Coutant & Eichenlaub (1975, x), Daiber (1992, 286).

164 On these titles, see 137.18a–b FHS&G with Sharples (1998, 19). The list in Diogenes Laertius (5.45 [173 Dorandi]) indicates that Περί ὕδατος consisted of three books.

165 For commentary on these texts, see Sharples (1998, 190–220). On 211A–C, see also pp. 152–153.

166 If this account is closely connected to *On Winds*, then Theophrastus is in §5 referring particularly or especially to winds that bring heavy rains.

167 Of course, if Theophrastus did discuss rain at length in his *On Water(s)*, that too could explain the brevity of *Metars.* 8: see Daiber (1992, 286) and Sharples (1998, 18).

Aristotle discusses clouds and rain in *Mete.* 1.9 & 11 and 2.6 & 9, though in terms of exhalations and not as the result of wind pushing clouds. A comparison of these chapters with Theophrastus' *Vent.* 5 and *Metars.* 7–8 supports the view that his *Metarsiology* is straddling or combining or connected to both *On Winds*, on the one hand, and Aristotle's *Meteorology*, on the other.

On Theophrastus' 'hydrology', see Steinmetz (1964, 217–298); for his views on rain in particular, see Strohm (1937, 403–407) and Steinmetz (1964, 217–221).

There are no variations between *POxy* 3721 and ms. A here. It is not clear to me what purpose the μέν in this line serves, as it does not seem to go with the δ' in the following line, so an editor might consider bracketing it.

ἐκ τῆς δ' αὐτῆς αἰτίας καὶ ὁ μὲν βορέας εὐθὺς ἀρχόμενος μέγας, ὁ δὲ νότος λήγων, ὅθεν καὶ ἡ παροιμία συμβουλεύει τὰ περὶ τοὺς πλοῦς.

Theophrastus now returns to the list of pairs of opposite attributes from § 4; but he bypasses four (pairs of) attributes—(1) κυματῶδες καὶ ἄκυμον καὶ (2) πυκνὸν καὶ (3) συνεχές καὶ (4) ἀνωμαλές καὶ ὁμαλόν—which he returns to (only very briefly) in the first half of § 6. His focus is on whether a wind is great or powerful when it begins, or when it is ceasing.

This pair of opposites, in connection with Boreas and Notos winds, is mentioned in [Thphr.] *Sign.* 29 (καὶ ὁ μὲν βορέας λήγων ἐλάττων ὁ δὲ νότος ἀρχόμενος) and is the subject of *Pr.* 26.39 (which opens: Διὰ τί ὁ μὲν βορέας ἀρχόμενος μέγας, λήγων δὲ μικρός, ὁ δὲ νότος ἀρχόμενος μὲν μικρός, λήγων δὲ μέγας).<sup>168</sup>

That Boreas is powerful when it begins, whereas Notos is when it ceases occurs for the same reason or from the same cause (ἐκ τῆς αὐτῆς αἰτίας): presumably the cause or factor that unites all of the attributes on this list, namely, distance from location. Unfortunately, in what follows Theophrastus provides few details as to how this is supposed to work, and in any case, distance from location turns out to be only part of the explanation (more on this shortly).

Re. ἡ παροιμία κτλ.: According to Diogenes Laertius (5.45 [158 Dorandi]), Theophrastus wrote an *On Proverbs* (Περὶ παροιμιῶν) in one book, for which two source-texts survive (737–738 FHS&G).<sup>169</sup> Peripatetics tended to take proverbs seriously, as a form of *endoxa* that could well represent or record generalizations of first hand observations.<sup>170</sup>

168 Cf. *Pr.* 26.19, which asks: Διὰ τί ὁ νότος οὐκ ἀρχόμενος ἀλλὰ λήγων ὑέτιος;

169 See Fortenbaugh (2014, 124–126 & 195–235) for discussion.

170 παροιμία is normally rendered 'proverb' (as it is in my translation), though 'saying' may be more accurate.

Proverbs appear a half-dozen times in *On Winds*, far more than in any other Theophrastean work (even the lengthy botanical ones): see §§ 5, 37, 46, 49, 50, 60. They are prominent in *Pr.* 26 as well: see §§ 9, 20, 27, 29, 41, 45, 46, 57.<sup>171</sup> This is no doubt because so many arise in nautical contexts, in which winds play such an important part. Although Theophrastus presents the facts (as he sees them) which give rise to or explain the proverb (as he does here), their purpose I suspect is to confirm some observation or conclusion of his (otherwise they would merely be remarks tossed in to add color, which seems unlikely).

The proverb referred to in § 5 but not quoted, is found in full at *Pr.* 26.45.945a29: “Tis well to sail when Notos begins and Boreas ceases” (εὖ πλεῖν ἀρχομένου τε νότου καὶ λήγοντος βορέαο).<sup>172</sup> That is, it is best to sail when Boreas or Notos is weak (i.e. at their weakest, as they are both powerful winds generally). I think the τε makes clear (if it was not already) that these two events are not simultaneous; the proverb is not referring to the same period. On when Notos begins and Boreas ends, see pp. 155–156.

There is one (insignificant) difference between *POxy* 3721 and ms. A here: δ’ αὐτῆς (Π) and αὐτῆς δ’ (A). Note that *POxy* 3721, col. i breaks off in the middle of this line (likely at δὲ νότος, though the last line is largely illegible). According to Haslam (1986, 177), approximately nine lines are missing from the column. The first line of col. ii is τοῖς δὲ περὶ Αἴγυπτον (which in the present edition appears four lines later).

ὁ μὲν γὰρ εὐθὺς οἶον ἐπὶ κείται τοῖς περὶ ἄρκτον οἰκοῦσιν, ὁ δὲ μακρὰν ἀφέστηκε· χρονωτέρα δ’ ἢ τῶν ἀπωθεν ἀπορροή καὶ ὅταν ἀθροισθῇ πληθός.

Theophrastus now provides an account—a brief and confused one—of this pair of opposites, as applied to Boreas and Notos. A number of clarifications must be made to understand what he is here describing.

First, Theophrastus’ explanation depends not simply on the distance the wind is from its location of origin, but also (perhaps primarily) on such a distance in relation to the people who perceive the wind. Boreas reaches or presses upon people in the north right away, with full force. He must mean not simply people who live to the far north, but people who live in the north relative to the origin of Notos (i.e. to southern Egypt and Libya). And so “those dwelling in the north” includes people living in Greece. This is confirmed in

171 For more on connections between the discussions of proverbs in Theophrastus and in the *Pr.* 26, see Mayhew (2012) and (2015).

172 See also *Pr.* 26.20.942b2 and 26.27.943a25.

§11: “Boreas is straightaway (present) among us” (ὁ δὲ βορέας εὐθὺς ἐν ἡμῖν—cf. *Pr.* 26.39.944b33: παρ’ ἡμῖν).<sup>173</sup> Consider the relevant habitable zone: from the Arctic Circle to the Tropic of Cancer (which runs through southern Egypt and Libya). Of course, Boreas blows from the Arctic Circle in the direction of the Tropic of Cancer, Notos blows in the other direction; and they are, in many respects, the same. But as Theophrastus (and Aristotle) understood the world, Greece is much closer to the Arctic Circle than it is to the Tropic of Cancer; and this ‘fact’ explains some significant differences between how the two winds are experienced on the Greek mainland and islands.<sup>174</sup>

Second, one must distinguish what Theophrastus means by a wind ceasing (λήγων) and a wind coming to an end. He discusses the latter in §36: “And it is (true) that (winds) are most powerful at the end (τὸ ἐπὶ τέλει μεγίστους εἶναι), for this is indeed common to very many. But when they blow out in a mass, little remains.” If all winds are most powerful at the end, and winds coming to an end and ceasing were the same thing, then one could not make sense of the proverb in §5 or of Theophrastus’ explanation of it: for he clearly implies that Boreas is weaker (or less powerful) when it ceases to blow. I think the difference between the two is this: *Coming to an end* refers to an absolute end of the wind—its reaching that point geographically where (or at that time period which?) it stops blowing. *Ceasing* refers to how a wind is perceived in particular location. At that location, the wind begins to blow, and then at some point it stops blowing—though the wind itself continues, moving on over and to other regions (until it comes to an end). So I think that what Theophrastus is saying is that in Greece—and not where either wind ends absolutely—Boreas begins strong and then tapers off, whereas Notos begins soft or slow and then gradually increases its velocity or power. And this makes sense, given where Theophrastus seems to think Greece is in relation to the origins of Boreas and Notos.

Third, another problem in untangling what Theophrastus is talking about is the fact that he thinks Boreas is powerful when it begins, whereas Notos is powerful when it ceases, for two different reasons. Boreas is more powerful when it begins because it has come through a narrow space and so straight-away moves more vigorously, but it becomes less vigorous as it travels further

173 Thus Steinmetz (1964, 28): *daß der Nordwind in Griechenland kurz nach seinem Beginn ... am heftigsten weht.*

174 I expect Greece is in fact much closer to the midpoint than Aristotle and Theophrastus realized: Athens, for example, is about 4400 kilometers from the Arctic Circle and nearly 5000 kilometers from the Tropic of Cancer. Or consider their different latitudes: Tropic of Cancer is currently about 23.25, Athens is at roughly 38, and the Arctic Circle is 66.5.



and spreads out. So while it is ceasing in Greece, it is less powerful and thus more conducive to sailing. (It is still a powerful wind, but its power has dispersed.) By the time Notos reaches Greece, however, it is more spread out and thus it arrives gradually—not all at once and at full force. But eventually, because it has travelled farther and over time accumulated more air, it is especially powerful by the time it begins to cease blowing. That in any case is the most sense I can make of this proverb and Theophrastus' explanation of it.

But an important detail is missing: Does Theophrastus have in mind one of these winds beginning or ceasing in a single day, or over the course of their season, or something else? Although Notos and Boreas are the most prevalent winds, as we have seen, they do not of course literally blow all the time, and equally at every time of the year. In § 10, Theophrastus says that Boreas winds blow “in winter and summer and until the end of autumn, whereas in the case of Notos winds (they blow) throughout winter and at the beginning (of spring) and the end of autumn.” If we applied the proverb here, the advice would be to sail in winter and in late-autumn; but that makes little sense. Most nautical proverbs do refer to a certain time during a single day (e.g. “Red sky at night, sailor's delight”); unfortunately, Theophrastus does not specify at what time of day either of these winds begins and ceases.

The author of *Pr.* 26.39 (the opening question of which is quoted above) seems to be struggling with this passage as well, and also to equate or connect a wind ceasing and coming to an end:

Is it because Boreas is near us, whereas Notos is far away? Therefore, the former, when it begins, is upon us straightaway, whereas the beginning of the latter is spread out owing to the length of time, and little of it reaches us at first: so we perceive the end of Boreas, but we do not wholly perceive the end of Notos. So it is natural that Boreas is weak when it is stopping—for the end of everything is weak—but Notos is not; for we never perceive its end.<sup>175</sup>

Coutant & Eichenlaub suggest an explanation of the actual phenomenon described here (1975, 68):

175 ἢ ὅτι ὁ μὲν βορέας ἐγγὺς ἡμῶν, ὁ δὲ νότος πόρρω; ὁ μὲν οὖν ὅταν ἀρξῇται, εὐθὺς παρ' ἡμῖν, τοῦ δὲ ἄτε διὰ πολλοῦ χρόνου ἡ ἀρχὴ διασκεδάννυται, καὶ πρὸς ἡμᾶς μικρὸν ἐξικνεῖται αὐτῆς τὸ πρῶτον· τῆς δὲ τελευτῆς τοῦ μὲν αἰσθανόμεθα, τοῦ δὲ ὅλως οὐκ αἰσθανόμεθα. ὥστε εἰκότως ὁ μὲν ἀσθενῆς παυόμενος (ἀσθενῆς γάρ ἢ τελευτὴ πάντων), ὁ δὲ οὐ· τῆς γὰρ τελευτῆς οὐκέτι αἰσθανόμεθα αὐτοῦ.

The proverb probably derived from the sequence of winds accompanying cyclonic passages through eastern Europe. The southerly winds in front of the cyclone gradually increase in velocity, the northerly winds behind the cold front to the rear of the cyclone decrease in velocity.

There is no need to emend ἐπίκειται. Its range of meanings provides one with options in how to render it, however. LSJ (s.v. ἐπίκειμαι) gives as its general meaning “to be placed, lie in or on, c. dat.”, but also *press upon, be urgent and attack* (II 2), as well as *hang over* (II 3).<sup>176</sup> Wood has “attacks”; Coutant “hovers.” I think the approach of Wood better fits the context, and translate it “presses upon.” Turnebus, in his copy of Vascosanus, sets off the prefix (thus: ἐπί]κειται), writing ἐγ above the ἐπί and πρὸς below it. I take these to be his suggestions: ἔγκεται and πρὸσκειται. Neither, however, is necessary: ἔγκεται could be right, though it has pretty much the same meaning as ἐπίκειται; and whereas πρὸσκειται fits, it is not an improvement and moreover is unsound paleographically. One might be tempted to suggest ἐξικνεῖται (‘reaches’), which appears in *Pr.* 26.39 and fits our context; but aside from being unnecessary, ἐξικνεόμαι never appears in Theophrastus nor in the *corpus Aristotelicum* (outside of *Pr.* 26.39).

τοῖς γὰρ περὶ Αἴγυπτον καὶ τοὺς τόπους ἐκείνους ἀνάπαλιν, ὁ νότος ἀρχόμενος μέγας, ὁ δὲ βορέας λήγων· ὅθεν καὶ τὴν παροιμίαν ἐναντίως λέγουσιν.

The same phenomenon is experienced, *mutatis mutandis*, by people living in the south, i.e. closer to the Tropic of Cancer: for instance, the Egyptians. Notos presses upon Egyptians right away, with full force, and becomes less powerful while it ceases to blow. This is because it has come through a narrow space and so straightaway moves more vigorously, but becomes less vigorous as it travels and spreads out. By the time Boreas reaches Egypt, however, it is more spread out and thus it begins soft or slow and then gradually increases its velocity or power (as described above in the case of Notos perceived in Greece).

One major textual issue: I print μέγας ὁ δὲ βορέας λήγων (based on the garbled text in *POxy* 3721) over (or in addition to) the reading of ms. A, which has μέγας alone. This requires some explanation. Where ms. A reads ὁ νότος ἀρχόμενος μέγας, *POxy* 3721 (col. ii, ll. 4–5) has ΟΝΟ|ΤΟCΑΡΧΟΜ[....]ΝΟΤ|ΟCΦΑΔΕ|<sup>BOPE</sup> ΑCΑΗΓΩΝ, which Haslam renders ὁ νότος ἀρχόμ[ενος] νότος ὁ δὲ βορέας ἀη[[γ]]ων. He explains the textual issues in his commentary (1986, 177):

176 BDAG s.v. ἐπίκειμαι [A] regards these senses as connected: “to press (on), hang over.”

Confusion here. [Col. ii, l.] 4 originally ended νοτος. ο δε, like βορε, is a subsequent addition. After ας, αγγων was written, but γ (*sic*) has a (cancelling?) dot above it .... The papyrus' underlying text must be ο νότος ἀρχόμενος μέγας, ο δὲ βορέας λήγων .... But the scribe wrote νοτος instead of μεγας, skipped οδεβορε, and misread λήγων: textual loss in [ms. A], or interpolation in the papyrus? The fuller expression would not surprise, but the briefer is readily intelligible in the light of the preceding sentence (see at i 21 for text), and the garbling in the papyrus could be the result of an attempt to incorporate a marginal addition, itself a gloss πρὸς ἀφήνειαν. On balance, even without invoking *lectio brevior potior*, I think the probability lies with [ms. A] here.

I lean in the other direction: even if ΟΔΕΒΟΡΕ was a later addition, ΑCΑΗΓΩΝ<sup>177</sup> would seem to indicate that something was there that was not an addition, and I think it more likely to be original material than “the result of an attempt to incorporate a marginal addition.” Of course, the *meaning* of the text is not altered either way.

### *On Winds 6*

As in the case of § 5, § 6 was an odd choice of division on the part of Schneider—only more so.

Its first part is a quick wrap up of the attributes explained on the basis of distance from location. When Theophrastus earlier skipped four pairs of attributes—dense or rare, waveless or wave-like, continuous or intermittent, regular or irregular—to discuss another (powerful when it begins or when it ceases), one might naturally have assumed he was postponing a longer discussion of these attributes and their causes. But it turns out that pretty much all there is to his explanation of these attributes, apart from anything he said about them earlier, is the brief passage that makes up the first part of § 6.

The second part of § 6 is a transition to, and the start of, a new section of *On Winds* (§§ 6.46–11.82, as I see it), focusing on Boreas and Notos, beginning (§§ 6.46–9) with a set of *aporiai* involving these prominent winds.

<sup>177</sup> The gamma in αγγων is fairly clear in the papyrus (though the eta is uncertain), and there is indeed a mark over it. But if this is a “cancelling dot” marking the gamma for deletion ([γ]), the scribe was mistaken: for the gamma is certainly not an error if αγγων is a garbled λήγων (as I think it is).

ῥαυτῶς δὲ καὶ τὸ πυκνὸν καὶ ἄκυμον καὶ συνεχὲς καὶ ὁμαλὲς ἐκείνοις ὁ νότος ποιεῖ μάλλον· αἰ γὰρ τοῖς ἐγγύς ἕκαστος τοιοῦτος· (εἰς) δὲ τὰ πόρρω καὶ ἀνωμαλὴς καὶ διεσπασμένος μάλλον.

This is the above-mentioned brief passage that makes up the first part of § 6 (which is, as I see it, the end of a section of *On Winds* that began with § 2).

Just as Notos is straightaway more vigorous and so is greater for those closer to its origin, so is it (for these same people) more dense and waveless and continuous and regular. Blowing with greater force, as it begins to blow, explains density, wavelessness, continuity, and regularity, because under these conditions the wind is even and more compact. Far from its origin, however, the wind is “more irregular and dispersed”—these are, I take it, the equivalent of two of the attributes (irregularity and rarity)—and therefore (as manifestations of this?) it is more wave-like (or gusty) and intermittent.

Theophrastus says nothing more about whether winds are waveless or wave-like. He mentions irregularity once more (§ 12) and density thrice (§§ 35, 58, 59). Only continuity and intermittency receive a fair amount of additional attention (§§ 12, 19, 34, 35, 40).

*Pr.* 26.16 opens with the question: “Why do Notos winds blow in winter and when spring begins and when autumn ends, and *why are they wave-like and twisting*, and why are they as cold to those in Libya as Boreas winds are here?”<sup>178</sup> Not only does this question associate Notos being wave-like (to those in Greece) with a different set of attributes (and not with rarity, intermittency, or irregularity, as in § 6), so its explanation is completely different from the brief one that Theophrastus provides, in that it refers solely to the movement of the sun in relation to southern regions.

Ὁ ἀνωμαλὴς καὶ διεσπασμένος, see pp. 92–93.

Re. συνεχὲς (the reading of the manuscripts): *POxy* 3721 has ἀσυνεχὲς, which is clearly a mistake. As Haslam comments (1986, 177): “ἀ- no doubt induced by the preceding privative” (i.e. ἄκυμον).

Ms. A has a lacuna of roughly three letters between ἕκαστος τοιοῦτος and δὲ τὰ πόρρω. *POxy* 3721 is unfortunately no help here. The relevant line (col. ii, l. 13) is εΤΟΙCΤ[ c. 10 ]TA, the first part of which no doubt matches ms. A’s ἕκαστος<sup>179</sup>

178 Διὰ τί οἱ νότοι πνέουσι μὲν χειμῶνος καὶ ἔαρος ἀρχομένου καὶ μετοπώρου λήγοντος, εἰς δὲ κυματοειδεῖς καὶ συνεστραμμένοι, καὶ τοῖς ἐν Λιβύῃ ὁμοίως ψυχροὶ ὡς οἱ βορέαι ἐνταῦθα;

179 There is a cancelling dot above the iota in εΤΟΙCΤ, so the iota does not preclude our reading ἕκαστος. The first sigma is written in smaller script, to the left of the line, and so may be a later correction. The preceding line must have ended EKA. Haslam reports a letter that might be the eta (he writes ε.), though that is difficult to make out.

τοιούτος; but the word corresponding to the lacuna in ms. A was among the roughly ten letters now missing from the papyrus. The TA that follows must be the article (τά) preceding πόρρω.<sup>180</sup> I accept Turnebus' suggestion (εἰς), which fits the lacuna perfectly, though we must assume some verb (e.g. πνέων) is implied.<sup>181</sup> "but (blowing) (into) far off (lands)" etc. Some have tried to emend the text to make a direct contrast with τοῖς ἐγγύς, and so fill the lacuna with <τοῖς> (from Anon.).<sup>182</sup> This requires bracketing the τὰ, however (which Schneider simply omitted).

A word is in order on the strange history of the μάλλον with which this passage ends. (POxy 3721 is no help here, as it is missing everything between the aforementioned τά, and ὑποληπτέον in the next passage.) The μάλλον is found in every manuscript, with the exception of r—a copy of the Aldine edition, which omits the μάλλον (whether deliberately or accidentally, I cannot say). As an indication of how dependent later editions were on the Aldine, note that this omission also occurs (without mention) in Gryneaus, Vascosanus, Camotius, and Wimmer.<sup>183</sup> (Similarly, Wood does not translate μάλλον.) Furlanus prints μάλλον in brackets (but does not discuss it in his commentary). He is followed by Heinsius, Schneider,<sup>184</sup> and Coutant.<sup>185</sup> There is, however, no reason to bracket μάλλον. (Gigon restored the μάλλον.)

180 Re. πόρρω, Haslam comments: "πώρρω is the papyrus' regular spelling." Apart from this note, I do not remark on this or similar differences, in the *apparatus criticus* or in the commentary.

181 Gigon conjectured προίων.

182 In the few places where it comes up in the commentary, I use the same abbreviation (Anon.) that I use in the *apparatus criticus*, to avoid having to write 'anonymous comments in the margins of one of the copies of Vascosanus in the Leiden University Library.' Note that Bonaventura (1593, 99) reports that τοῖς δὲ τὰ πόρρω is Turnebus's reading. This is not found in Turnebus' comments in Vascosanus, however, and I do not think Bonaventura deduced this from Turnebus's Latin translation: *Unis enim quisque proximis huiusmodi est* (1600, 2: 42).

183 Wimmer's is the only edition among these five with an *apparatus criticus*, but he does not there refer to the μάλλον of the manuscripts.

184 Schneider's two comments on this are, in combination, strange: *Sequens μάλλον temere addidit Furlanus* (1818, 2: 589); and, *Vocabulum μάλλον in versione omissum seclisit cum Furlano Heinsius* (1818, 4: 683).

185 Coutant inaccurately reports in his apparatus that μάλλον is found only in A D H N R V<sup>a</sup> but not in the other manuscripts.

τούτων μὲν οὖν τὰς εἰρημένας αἰτίας ὑποληπτέον, αἵπερ ἐμφανεῖς καὶ κατ' ἄλλους  
τόπους εἰσὶν ἐλάττους καὶ ἔλαττον ἀπέχοντα ἀλλήλων.

This (somewhat murky) passage is part reiteration or summary, part transition to the next major theme or topic of *On Winds*.

Theophrastus reiterates what he said in § 4, namely, that whether a wind is rainy or clear, wave-like or waveless, dense or rare, continuous or intermittent, irregular or regular, and powerful when it begins or when it ceases, is explained largely by reference to the distance from the location of origin. What he adds or emphasizes here is that although his discussion focused on the two major winds (Boreas and Notos) and on very distant locations (Greece in the north, Egypt and Libya in the south), distance from location of origin is also a causal factor in the case of other winds—operating in regions that are less vast and closer together than Greece and Egypt—and likewise explains these same attributes. For example, see § 44, on the different effects of Zephyrus on different locations from west to east, depending in part on how close the locations are to where Zephyrus begins to blow.

I take τούτων to refer to αἱ διαφοραί (i.e. αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα); but Theophrastus may not have been so specific. Wood translates it “these latter facts,” Coutant “the above phenomena”; and “these phenomena” may be all that he had in mind.

The easy emendation of τρόπους of the mss. to τόπους seems necessary, and every editor since Turnebus suggested it has made the change. But cf. Bonaventura (1593, 99–100).

This passage is transitional—it and the next sentence are connected through a μέν—δέ construction—between what is arguably the first major section of *On Winds* and the second. Theophrastus has just given an account of the attributes of winds that purports to be fairly universal, though the paradigm cases are Boreas and Notos. But he immediately states that these paradigm winds may or seem to be exceptional in certain respects.

Steinmetz (1964, 29) describes the *Vorlesungsthema* of this part of the work (in his view, the remainder of § 6, beginning with the present passage, up to and including all of § 9) as *Lösung von Einzelproblemen, die der Aitiologie des Boreas und Notos zu widersprechen scheinen*.<sup>186</sup> He presents the three problems as questions to be answered:

<sup>186</sup> We have seen such a problem (or paradox) before, in § 2; and another problem involving Boreas and Notos is arguably discussed in § 11. I disagree with Steinmetz's division of the text here—I extend this section to § 11—but I think his summary of the three problems discussed in §§ 6–9 is accurate.

1. *Warum ist der Notos im Süden immer heiter, der Boreas im Norden aber bei strengem Winter neblig?*<sup>187</sup>
2. *Weht im Ägypten im Küstenstreifen kein Notos?*<sup>188</sup>
3. *Warum folgt auf Südwind unmittelbar ein Nordwind, nicht aber umgekehrt?*<sup>189</sup>

This is a sound description of what follows. But it is only the first item on the list that seems to be contrasted with what comes before it, as an anomaly—something that might contradict Theophrastus' account of the attributes of wind. But then, it seems, Theophrastus takes this opportunity to discuss two other puzzles involving Boreas and/or Notos.

τάδε δ' οὐκ ἂν δόξειεν ἀνάλογον ἔχειν· ὁ μὲν γὰρ νότος αἰ τοῖς ἐγγύς τόποις αἴθριος, ὁ δὲ βορέας ὅταν ᾗ κατὰ χειμῶνα μέγας ἐν μὲν τοῖς πλησίον ἐπινεφῆς ἔξω δ' αἴθριος.

In § 4, Theophrastus says that whether a wind is rainy or clear is determined in large part by its distance from the location of origin, namely, it is clear near its origin but becomes cloudier or rainier as it moves farther away from it. And he specifically says that this is true of Notos and Boreas. (In § 5, he adds that the elevation of the region over or against which a wind blows also has a great influence on whether it is rainy or clear.) At the end of § 6, however (the present passage), he says that although this is true of Notos (it is *always* clear near its origin, i.e. in southern regions), this is not so in the case of Boreas: it is not *always* clear near its origin, i.e. in northern regions, for when it is powerful in winter, it is cloud-bearing near its origins but clear as it travels south. All of § 7 is devoted to explaining this apparent anomaly.

Re. ἀνάλογον ἔχειν: LSJ (s.v. ἀνάλογος) gives as its primary meanings *according to a due λόγος, proportionate, conformable*, and notes that “neut. ἀνάλογον freq. in Arist. in adverbial sense, *in proportion*.” Though ἀνάλογον with ἔχειν is quite common in Aristotle, it is less so in Theophrastus (but see § 59 and *CP* 1.16.5). In any case, ἀνάλογον ἔχειν here seems to mean something like “to be proportionate/conformable” or “to have a correspondence.” In the present case,

187 That Notos is clear in the south, whereas Boreas is cloudy in the north when there has been a storm, but clear farther away, is discussed in the last part of § 6 and in § 7.

188 Whether Notos blows in Egypt on the coast is discussed in § 8.

189 That Boreas blows after Notos, whereas Notos does not blow after Boreas, is discussed in § 9.

if one takes τάδε to be the likely reading of the papyrus (following Haslam), then the text is saying that “these might (not) seem to have a correspondence.”

*POxy 3721* (col. ii, 20–28) and ms. A are quite different here. I present first the text of the papyrus (as edited by Haslam):

- Π: τὰδε<sup>190</sup> [δ' οὐκ<sup>191</sup> ἀ]ν δόξειεν ἀνά[α]λογον ἔχειν· ὁ μὲν γὰρ [νότο]ς αἰε τοῖς ἐγγὺς [τόποις] αἰθριος, ὁ [δ]ὲ βο[ρέας] ὅταν ᾗ κατὰ [χειμῶν]α μέγας ἐν [μ]ὲν [τοῖς π]λησίον ἐπ[ινεφῆς] ἔξ[ω] δ' α[ἴ]θρ[ιος].<sup>192</sup>
- A: τοῦτο δ' οὖν καὶ δόξει ἀνάλογον εἶναι· ὁ μὲν γὰρ νότος αἰε τοῖς ἑαυτοῦ τόποις αἰθριος· ὁ δὲ βορέας ὅταν ᾗ χειμῶν μέγας· ἐν μὲν τοῖς πλησίον συννεφῆς· ἔξω δ' αἰθριος.<sup>193</sup>

The variations are (Π / A): (1) τάδε / τοῦτο, (2) [οὐκ (?) ἀ]ν δόξειεν / οὖν καὶ δόξει, (3) ἔχειν / εἶναι, (4) ἐγγὺς / ἑαυτοῦ, (5) κατὰ χ(ε)ιμῶνα / χειμῶν, and (6) ἐπινεφῆς / συννεφῆς.

I think the papyrus gives us the better reading, though ms. A's is not impossible. (Haslam writes that the reading of the papyrus “is to be followed, I suppose.”) I think it is useful to compare the translations of each text:

- Π: But these might not seem to have a correspondence: for Notos is always clear in the nearby locations, whereas Boreas, when it is powerful during winter,<sup>194</sup> is cloud-bearing in the neighboring (locations), yet clear beyond (them).

190 In his diplomatic transcription, Haslam prints τ.δε) (and in his fuller text τὰδε). He comments in his apparatus: “τ., specks on torn and broken papyrus, compatible with α, not I think with ο.” Incidentally, the pointed bracket in Haslam's diplomatic transcription is not an editorial symbol, but represents a mark in the papyrus following ΔΕ. It looks to me to be part of an upsilon (Υ rather than Ψ), but I cannot imagine how to construe that in context: so either Haslam is correct, or the upsilon is a scribal error.

191 There is no evidence of οὐκ (or οὖν) in the papyrus. This is Haslam's reading, based on the conjecture of Schneider. Although, all things being equal, one ought to follow ms. A here, given the lacuna in Π, I agree that οὐκ is required for sense.

192 On this passage, see Becchi (2014, 371–374). He favors οὖν of the manuscripts over οὐκ, but I am not persuaded by his arguments.

193 Where ms. A is illegible, I use the reading in D. See the *apparatus criticus* for details.

194 In the combination κατὰ χειμῶνα, χειμῶν has the sense of ‘winter’ and not ‘storm’. For Peripatetic examples, see Arist. *HA* 8(9).22.617b11, and Thphr. *HP* 4.8.13, 5.1.2, *CP* 1.10.2, 1.13.1, 3.3.4, 5.1.2.



- A: But this, then, might in fact seem to be illogical.<sup>195</sup> for Notos is always clear in its own locations, whereas Boreas, when there is a great storm,<sup>196</sup> is cloudy in the neighboring (locations), yet clear beyond (them).

As Haslam (1986, 177) notes, the reading of the papyrus gets some support from *Pr.* 26.62, which begins Διὰ τί οἱ βορέαι μεγάλοι τοῦ χειμῶνος ἐν τοῖς ψυχροῖς τόποις ἐπινέφελοι, ἔξω δὲ αἰθριοί; (“Why are the strong Boreas winds in winter cloud-bearing in the cold locations, yet clear beyond them?”).<sup>197</sup>

### *On Winds 7*

This chapter is devoted entirely to explaining the puzzle or problem (involving Boreas and Notos) described at the end of § 6.

αἴτιον δ' ὅτι διὰ μὲν τὸ μέγεθος πολλὴν ἀέρα κινεῖ, τοῦτον δὲ φθάνει πηγνὺς πρὶν ἀπῶσαι. παγέντα δὲ μένει τὰ νέφη διὰ βάρους· εἰς δὲ τὰ ἔξω καὶ πορρωτέρω τὸ μέγεθος μάλλον ἢ ἡ ψυχρότης διαδίδεται καὶ τοῦτο τὸ ἐργαζόμενον.

Theophrastus opens by explaining an exceptional circumstance under which Boreas is not clear (i.e. is cloudy or rainy) near its origin but is clear further from it (the opposite of what occurs in all other winds in any circumstances). The exceptional circumstance, as we saw at the end of § 6, is when there is a powerful Boreas wind during winter. The implication seems to be that Boreas is powerful owing to a storm, or in any case that a powerful Boreas in winter involves a lot of air and moisture. The explanation of the anomaly is pretty straightforward (though there is one puzzle): Clouds begin to form close to the origin (whereas normally it is clear). Because of the cold of the region, the clouds freeze and, owing to their weight, remain in the north (i.e. they are not blown or pushed away). Under these conditions, Boreas is thus not clear near its origins. And since the matter that would in normal circumstances farther away condense into cloud is not carried by the wind but remains behind, the wind is clear farther away from its origin. Again, cf. *Pr.* 26.62.

195 Emending ms. A's δόξει ἀνάλογον to δόξει(εν) ἀν ἄλογον *vel sim.*

196 In this context, χειμῶν μέγας makes much more sense rendered “great storm” than it does “great winter.”

197 This text makes the case for ἐπινεφής over συνεφής stronger, as little remains in the papyrus. In fact, in his diplomatic transcription Haslam prints . . . [ , and in his fuller text ἐπ[ινε]φής]. He comments: “The traces suit ἐπ[ but not συ].”

What I find puzzling in § 7 is the claim that the *power* of the wind is transmitted in these circumstances, but not the *cold*. I would have expected the claim to be that the clouds (and the air and moisture of which they consist) are not pushed forward, but the power *and the cold* of the winds are. The assumption seems to be that the clouds (or the matter of which they consist) are the seat of the cold.

The text as transmitted in ms. A is problematic, and has been much emended by editors.<sup>198</sup> I agree with Haslam that *POxy* 3721 is a superior text, though note that Becchi (2014, 374–376) disputes this. It is worthwhile laying out the major difference between *POxy* 3721 and ms. A here:

Π: τὸ μέγεθος[ς] μᾶ[λ]λον ἢ ἡ ψυχρότης διαδίδοτ[α] κα[ι] τοῦ[τ]ο ἐργαζόμενον  
 A: τοῦ μεγέθους μᾶλλον ἢ ψυχρότης διαδίδεται καὶ τοῦτο ἐργαζομένη

I follow Haslam and print the former. Becchi, however, makes a noteworthy case for a reading closer to the manuscript tradition: τοῦ μεγέθους μᾶλλον ἢ (for ἢ) ψυχρότης διαδίδεται καὶ τοῦτο ἐργαζομένη, which he translates *più della forza si diffonde il freddo (nel senso che disperde energia o meglio la trasforma perché la massa d'aria si riscalda), che produce anche questo effetto (καὶ τοῦτο ἐργαζομένη)*. Though I do not in the end accept his interpretation, he has succeeded in slightly lowering mine confidence in Π here (cf. Haslam, p. 178: “obviously correct”).<sup>199</sup>

It should be noted that in this brief text alone, Gigon anticipated the reading of *POxy* 3721 three times: (1) φθάνει πηγνύς for ms. A's φθάνει καὶ πηγνύς; (2) εἰς δὲ τὰ ἔξω for ms. A's εἰς τὰ ἔξω (earlier editors had inserted the δέ post ἔξω); (3) ἢ ἢ for ms. A's ἢ.

ὁ δὲ νότος ἦττον τε ἔχων ὕλην καὶ ταύτην οὐ πηγνύς ἀλλ' ἀπωθών, αἰθρίος αἰ τοῖς πλησίον.

Theophrastus here explains why Notos is not an anomaly. Boreas is an (apparent) anomaly when it is strong during winter; so I assume Theophrastus is referring especially to Notos during winter, explaining why it does not diverge from the usual pattern for winds (clear near its location of origin, cloudy or rainy further on). As he puts it in § 6, “Notos is always clear in the nearby locations.”

198 For instance, in place of ms. A's φθάνει καὶ πηγνύς Wimmer prints φθάνει ἐκπηγνύς.

199 A reasonable suggestion, but ultimately unnecessary (in light of Π), is Wimmer's change of ms. A's ἐργαζομένη to ἐργάζεται (accepted by Coutant). Cf. Furlanus' τοῦτω ἐργαζόμενος for τοῦτο ἐργαζομένη (p. 79).

The explanation is relatively straightforward: As there is a warmer climate in the south, any moisture pushed by the wind does not freeze and so it is not prevented from being pushed away. But Theophrastus also refers to its “having less matter”: perhaps he is saying that clouds that form in the south do not contain as much moisture as they do in the north (because the south is hotter and drier), and this (in addition to its not freezing) results in Notos more easily pushing its moisture away.

Wood renders ἥττον ἔχων ὕλην “having substance to a lesser degree,” and in a footnote adds: “This seems entirely inconsistent with the argument in § 3.” But there is a contradiction only if one contrasts “having less matter” (here) with Notos being denser at its origin (as in § 3); but there is no reason to make this comparison.

There is one difference between *POxy* 3721 and ms. A here. Something is a little off with the text of the papyrus (what remains of col. iii, l. 14, begins ΑΙΘΡ<sup>Ι</sup>Ο, CAEI), but Haslam is certainly right that the intended text was αἰθρίος αἰεί; cf. αἰθρίαν ἄγει (ms. A). He comments (1986, 178):

We might expect αἰθρίος αἰεί, in iteration of § 6 *fin.*, and this is what seems to underlie the muddle in the papyrus. [Ms. A], however, gives αἰθρίαν ἄγει. Decision is not easy; but if the truth were αἰθρίος αἰεί I would not expect to find αἰεί again after ὑετιώτερος [at § 7.54], and corruption from αἰθρίαν ἄγει to αἰθρίος αἰεί is in the context more readily intelligible than the other way about.

I agree this is a toss-up; and I agree that corruption from ἄγει to αἰεί is more likely than the other way around. But I disagree with the point about the repetition of αἰεί, as I find αἰθρίος αἰεί ... ὑετιώτερος αἰεί an effective contrast. Because of that, and because of the priority of *POxy* 3721, I lean toward (and in the end accept) αἰθρίος αἰεί.

ὑετιώτερος δ' αἰεί τοῖς πόρρω, μέγας πνέων καὶ λήγων μάλλον ἢ ἀρχόμενος· ὅτι ἀρχόμενος μὲν ὀλίγον ἀέρα ἀπωθεῖ, προΐων δὲ πλείω. καὶ οὗτος ἀθροιζόμενος ἐκνεφοῦται τε καὶ πυκνωθεὶς ὑδάτινος γίνεται.

Theophrastus next offers an explanation as to why Notos, though clear at its origin, is cloudy or rainy further on. It is surprising that he does so here: for in doing so, he in part offers a general explanation for what was merely asserted in § 4 as true for all winds: “from wherever each wind blows, at these locations it is clear; whereas wherever it pushes the air, at these locations however it is cloudy and rainy.” Notos (and all winds in fact, excepting Boreas during winter)

is clear near its place of origin because it has not had the chance to accumulate and condense air, which creates clouds and ultimately rain. Once the wind has moved a certain distance, however, and pushed a certain amount of air (we are not given details), the air (which has some amount of moisture) condenses and goes from being clear to cloudy to rainy.

I say ‘in part’ because Theophrastus also connects his explanation of Notos being clear near its point of origin but rainy farther away, with a particular feature of it, namely, that Notos is powerful not straightaway, but when it ceases. Perhaps Theophrastus’ point is that although it is true generally that winds are clear near their origin and cloudy or rainy farther away, it is especially true of Notos (at least as experienced by those living in Greece), because its power increases as it blows. On the connection, in the case of Notos, between these attributes—clear at origin, strong when ceasing—see *Pr.* 26.19, 20, & 38.<sup>200</sup>

There are two differences between *POxy* 3721 and ms. A here, and again, I think the papyrus gives us the superior text: ἀπωθεῖ (Π) versus ἀπωθεῖται (Α), and οὔτος (Π) versus οὕτως (Α). Haslam notes (1986, 178) that editors have not been bothered by ἀπωθεῖται, although the middle does not work here. And see his long comment on the superiority of οὔτος—and Becchi (2014, 376–377), who favors οὕτως.

τὸ δὲ καὶ τὸ ἀπ’ ἐλάττονος ἢ μείζονος ἀρχῆς ἀρχεσθαι διαφέρει. μικρὰς μὲν γὰρ οὔσης αἰθρίας, μεγάλης δ’ ἐπινεφῆς καὶ ὑέτιος διὰ τὸ πλείω συνωθεῖν ἄερα.

Theophrastus has made it clear that he thinks that explaining the causes of the attributes of particular winds is a complicated matter, and here he is describing another complication. He earlier stated a general truth about an attribute of winds: they are clear near their location of origin, and cloudy or rainy farther away. He then described an important exception: the opposite is true of Boreas during winter. And then he described why this general truth is, so to speak, true especially for Notos (because of another attribute, namely, its being weak at the beginning but stronger later on). In the present passage, I take Theophrastus to be saying that, beyond Boreas and Notos, the above mentioned general truth will be more or less true for or applicable to other winds as well, depending on yet another factor: a wind’s origin or source or starting point (ἀρχή).

The placement of the related noun and verb (ἀρχῆς ἀρχεσθαι) is not accidental, and the phrase could be rendered (awkwardly) as ‘whether the beginning (of the wind’s blowing) is from a smaller or greater beginning (location)’. But

200 Cf. [Thphr.] *Sign.*: ὁ νότος ἀρχόμενος ξηρὸς, τελευτῶν δὲ ὑγρὸς (35.254).

what does it mean for a beginning or starting point (an origin) to be smaller or greater? Coutant & Eichenlaub (1975, 69) comment: “‘Source’ means both amount of matter and force (Bonaventura).”<sup>201</sup> ‘Source’ may in fact be the best way of rendering ἀρχή here, as that is one meaning of the word and it makes the most sense when modified by “smaller or greater”; and clearly, the amount of matter is part of what Theophrastus is talking about. But I translate it ‘origin’ here as I do in the two other places in which it occurs (§§ 30 & 41). I think the word is doing double duty for Theophrastus: he is referring to the geographical location (with its relevant features) from which the wind starts out (its origin), *and* to that location as a *source* of certain kinds of matter (air and moisture) with specific qualities (hot, cold, wet, dry). In §§ 30 & 41, the two other chapters in which he refers to a wind’s ἀρχή, what is featured are such geologically relevant factors as whether the location is elevated, or whether the wind comes from or over a body of water, etc.

So I assume that to call the origin smaller or greater refers to the amount of air and moisture, given the location of origin (in the sense of east, west, north, south) and its geological attributes. Regarding the former (the compass location), it is certainly relevant to their power (as Theophrastus explains in § 2) that Boreas and Notos come from the north and the south, which are directly perpendicular to the path of the sun, which pushes a great deal of air north and south. From this perspective, every other wind is smaller (i.e. weaker) than Boreas and Notos.

I do not think the second sentence in this passage (“For when the origin is small the wind is clear,” etc.) is contradicting anything Theophrastus has said before—namely, that winds are clear at their origin but not farther away. Rather, I take him to be saying that these attributes admit of degrees, and that although (for example) winds are in general cloudy or rainy farther from their origins, a wind is more or less cloudy or rainy depending on the specific characteristics of its origin. For example (see § 42), a wind would be especially cloudy and rainy farther on if its origin were on or near the ocean. And although it would be relatively clear near its origin, it would not be as clear as a wind that blows out of a desert.

The one textual issue concerns the opening of the passage. Turnebus had a problem with the text of the manuscripts (τὸ δὲ καὶ τὸ), and so struck out the second τό. Schneider opted for a somewhat smoother emendation (ἐστὶ δὲ καὶ

<sup>201</sup> See Bonaventura (1593, 104–105): he refers to Arist. *Mete.* 2.4. Wood (1894, 25) translates ἀρχὴς “active principle” and refers (in a note) to his Introduction p. 13 (which identifies the active principle as fire, in its connection with exhalations).

τὸ). I was tempted to adopt Schneider's emendation (as Wimmer and Coutant had done); however, as the papyrus rules out the passage beginning with ἔτι (but is otherwise not much help, though see the next paragraph), I decided to print the manuscript reading, rendering it "But moreover, the" etc.<sup>202</sup>

This is the last passage covered by *POxy* 3721. The end of the third column is quite mangled. Regarding the opening of our passage, in his diplomatic transcription Haslam prints "ταῖτ[. . .] . . . [" (the first three letters being the ending of γίνεται, from the previous passage). After the τ, the remainder of the line—roughly 12 letters—is missing, with traces of the bottoms of (probably) three letters, 2–3 spaces away from the τ. The following line begins with a clear λαττ (from ἐλάττονος), so we can assume (as Haslam does) that the previous line ended with απε. So what immediately follows τ (approximately nine letters) is uncertain. Haslam comments: "τὸ δὲ καὶ τὸ [ms. A]: ἔτι δὲ καὶ τὸ Schneider. Neither of these stood in the papyrus, and I do not know what did." I assume he comes to this conclusion because of the nature of the remaining traces, as τὸ δὲ καὶ τὸ fits the length of the missing portion of the papyrus. He continues: "τὸ δὲ τὸν ἀνεμον is not to be read, τ[ὸ δ'] ἀνε[μ]ον hardly."

### *On Winds 8*

§8 is devoted to answering a question concerning—or solving a problem about—Notos, specifically involving whether it blows in Egypt on and near the coast. It has three parts: the statement of the puzzle (with a denial that there is in fact much that is puzzling); Theophrastus' explanation of the relevant phenomena; and, a final line that is difficult to integrate into the rest of the chapter.

τὸ δὲ μὴ πνεῖν κατ' αὐτὴν τὴν Αἴγυπτον εἰς θάλατταν τὸν νότον ὥς τινὲς φασὶ μὴδ' ὅσον ἡμέρας ἀπέχοντα[ι] καὶ νυκτὸς δρόμον, ἀλλὰ τὰ ὑπὲρ Μεμφίδος<sup>203</sup> λαμπρόν, ὁμοίως δὲ καὶ ἃ ἂν ἀπέχη τοσοῦτον, οὐκ ἀληθὲς μὲν εἶναι φασιν ἀλλὰ ψεῦδος· οὐ μὴν ἴσως γε, ἀλλ' ἔλαττον πνεῖ.

There was apparently a dispute about whether (or in what way) Notos blows in Egypt. Some say that it blows vigorously south of Memphis, but not at all

<sup>202</sup> Theophrastus also begins a new thought with τὸ δὲ καὶ at *HP* 5.9.1.1 On this use of τό, see LSJ s.v. ὁ, ἡ, τό A VIII 3: "neut. acc. τό, *wherefore* ...; also τὸ δέ abs., but *the fact is* ...."

<sup>203</sup> Μεμφίδος is Aldus' correction of the paradosis (μεμφίνος). I almost missed this, and caught my error while recently checking Gigon's *apparatus*.

beyond it (i.e. over the Delta and north to the coast).<sup>204</sup> If this were true, it would be a genuine puzzle: The flow of both Boreas and Notos “becomes both more massive and more continuous” (§ 2); but according to this *endoxon*, Notos actually stops blowing when it reaches Lower Egypt. Theophrastus’ solution, so to speak, is to say that there is no puzzle at all: This view is false; Notos *does* blow in this region as well, only it does not blow as vigorously. He explains why in the remainder of § 8.

Coutant & Eichenlaub (1975, 69) remark: “In fact, the wind data suggest just the opposite. Southerly winds are more frequent, particularly in winter, at Alexandria, on the coast. In Upper Egypt, northerly winds dominate throughout the year.” If this description of the meteorological facts was true for the fourth century B.C. as well, then Theophrastus’ view, though inaccurate, was closer to the truth than the *endoxon* he is refuting (that Notos does not blow on or near the coast).

In § 59–61, nearing the end of *On Winds*, Theophrastus lists or sketches perplexing issues (involving particular winds) that require further inquiry. In some cases there is a brief (likely provisional) explanation. The following is one such issue (without explanation) mentioned in § 61: “That a vigorous Notos does not blow in Egypt, extending for a day and night run (inland), is false.” I think that the presence of this line among that list is a likely indication of (1) the incomplete and unpolished state of *On Winds*, and (2) how Theophrastus worked. Regarding (2): it seems he compiled a list of puzzles to deal with once the bulk of the treatise had been written, and when he was satisfied that he had solved the puzzle he inserted his treatment of it into its proper place in the treatise (unless this insertion was a revision to the work by someone else). Regarding (1): that he did not remove the item from the list in § 61 after having dealt with the puzzle in § 8 suggests that *On Winds* was never completed, or at least confirms that it is not a polished work.

As evidence that there were other Peripatetics interested in this puzzle, as a transition to the remainder of § 8 (Theophrastus’ explanation), and because some editors have used it to emend the text of § 8, I present here in full *Pr.* 26.44:<sup>205</sup>

204 Memphis was the major city roughly marking the division between Lower Egypt (to the north), i.e. the Nile Delta, and Upper Egypt (to the south), i.e. the region around the Nile itself. So what is being referred to here is the coast of Egypt and the Nile Delta. Memphis, it seems, was (held to be) roughly a night and day run inland. At present, the length of the Nile delta from north to south is approximately 160 kilometers.

205 Louis (1993, 197–198) argues that a comparison of *Vent.* 8 and *Pr.* 26.44 supports his view

Why does Notos not blow down Egypt itself in the regions by the sea nor for the distance of a night and day run (inland), whereas in the regions beyond Memphis and extending for the distance of a night and day run, it is vigorous? And (why) does it not blow towards the west for the distance of a run of two days and two nights, whereas towards the east the Lips blows? Is it because Egypt in its lower regions is hollow, which is why (Notos) passes over it, but up and farther away the regions are higher.<sup>206</sup>

Re. the opening of § 8 (τὸ δὲ μὴ πνεῖν κατ' αὐτὴν τὴν Αἴγυπτον εἰς θάλατταν τὸν νότον): a few emendations have been suggested by editors (one of which I have accepted), in some cases based on the opening of *Pr.* 26.44 (Διὰ τί ὁ νότος οὐ πνεῖ κατ' αὐτὴν τὴν Αἴγυπτον τὰ πρὸς θάλατταν ...). Although I do think it advisable to emend the manuscripts' κατὰ ταύτην to κατ' αὐτὴν,<sup>207</sup> which is fairly easy to explain paleographically, changing εἰς to τὰ πρὸς (see Forster 1921, 167) is neither easy to explain nor necessary. We might have expected εἰς τὴν θάλατταν, but εἰς θάλατταν is not uncommon.<sup>208</sup> It is not clear to me what purpose αὐτὴν serves in the phrase κατ' αὐτὴν τὴν Αἴγυπτον εἰς θάλατταν ("down Egypt *itself* to the sea"): 'down' refers to the direction of Notos from Upper to Lower Egypt (south to north, which is of course how Notos blows), and εἰς θάλατταν is clear enough. I would speculate that 'Egypt itself' refers to the whole of Egypt. (The manuscripts' κατὰ ταύτην is even more difficult to explain.)

Re. ἀπέχοντα: This is Vascosan's minor emendation of ἀπέχονται. ἀπέχοντα is a participle modifying τὸν νότον; there is no need to bracket the entire word, as Steinmetz suggests (1964, 29 n. 2)

Wimmer's ἄν for ms. A's ἐάν makes sense, and is preferable for Furlanus' <ἄ> ἐάν.

There has, I think, been an unnecessary level of concern over the viability of the manuscript reading οὐ μὴν ἴσως<sup>209</sup> γε ἄλλ' ἔλαττον πνεῖ. Turnebus changed

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that Aristotle wrote the latter, and that Theophrastus copied (or plagiarized!) him. For objections to Louis's arguments, see Mayhew (2015, 297–299).

206 Διὰ τί ὁ νότος οὐ πνεῖ κατ' αὐτὴν τὴν Αἴγυπτον τὰ πρὸς θάλατταν, οὐδ' ὅσον ἡμέρας δρόμον καὶ νυκτός, τὰ δὲ ὑπὲρ Μέμφεως καὶ ἀποσχόντι δρόμον ἡμέρας καὶ νυκτός λαμπρός; καὶ πρὸς ἐσπέραν οὐ πνεῖ, ὅσον δύο ἡμερῶν καὶ νυκτῶν δρόμον, τὰ δὲ πρὸς ἔω λίβες πνέουσιν; ἢ διότι κοίλη τὰ κάτω ἢ Αἴγυπτός ἐστι, διὸ ὑπερπίπτει αὐτῆς, ἄνω δὲ καὶ πόρρω ὑψηλότεροι οἱ τόποι.

207 Turnebus was the first to suggest this; Bonaventura noted its connection to *Pr.* 26.44 (1593, 105).

208 See, among Peripatetic texts, Arist. *Mete.* 1.13.351a4, 2.3.358b17, [Arist.] *Pr.* 26.58.947a19.

209 οὐ and ἴσως are illegible in ms. A, but they are the clear reading of D and of all other manuscripts.



ἴσως το ἴσος and ἔλαττον το ἐλάττων, and Bonaventura recommended emending πνεῖ to πνεῖν (1593, 109).<sup>210</sup> Though Schneider's edition prints the manuscript reading (1818, 1: 760; cf. 1821, 5: lvii), in his notes on the text he writes: *Non dubium est, scriptum fuisse: οὐ μὴν ἀλλ' ἴσως γε ἔλαττον πνεῖ* (1818, 2: 589; cf. 1818, 4: 685).<sup>211</sup> Wimmer and Coutant accept the paradosis. οὐ μὴν answers the μέν in the previous line (see Denniston 1950, 369–370): *On the one hand*, the claim that Notos does not blow near the Egyptian coast is false; *on the other*, it does *not* blow as vigorously as it does inland. οὐ μὴν answering μέν is fairly common in Theophrastus (e.g. there is one more instance in *On Winds*, see § 48), and often (as here) οὐ μὴν is accompanied by γε (e.g. *HP* 4.7.2, *Sens.* 5; see Denniston 1950, 338).

τὸ δ' αἴτιον ὅτι κοίλη τὰ κάτω ἢ Αἴγυπτος, ὥσθ' ὑπερπίπτειν αὐτῆς, τὰ δ' ἄνω ὑψηλότερα. ἔπειτα τὸ γε σύνεγγυς ἀπαιτεῖ τὸ μέγεθος† τὰ γὰρ τοιαῦτα μάλιστα ἐκ τῶν τόπων ἀποδοτέον, ἅπερ καὶ φύσιν ἔχει[ν].

So the problem described in the first half of § 8 turns out to be no problem at all. What is required is not a solution to a puzzle, but merely an explanation of a particular phenomenon: why Notos blows less vigorously when it reaches Lower Egypt. In the opening line of § 5, Theophrastus says that the fact “that regions have elevation is not a small but a very great influence”; and this is what he has in mind when, in § 8, he says that “one must explain such phenomena ... especially with reference to their locations.” He is referring to the contrast between the elevations of Upper and Lower Egypt.<sup>212</sup>

The explanation turns out to be quite straightforward: Notos is vigorous as it sets out from its source,<sup>213</sup> because of its proximity to the source and because its elevation at the source is relatively high; but once it reaches Lower Egypt, which is ‘hollow’ (κοίλη)—which I take it here means empty or flat, and lacking elevation—it passes over it, i.e., blows higher above the ground there. The result, apparently, is that Notos is still felt there, though it is not felt with the same force.

<sup>210</sup> πνεῖν (the reading of ms. N, unbeknownst to Bonaventura) was also accepted by Gigon.

<sup>211</sup> Oddly, Wood (1894, 25 n. 11) writes: “I adopt Schneider's and Wimmer's reading, οὐ μὴν ἴσως γε, ἀλλ' ἔλαττον πνεῖ. for the common reading οὐ μὴν ἀλλὰ γε ἔλαττον πνεῖ.” But the former is the manuscript reading; I do not know where this ‘common’ reading comes from.

<sup>212</sup> Theophrastus may have in mind the Silver mountains of southern Egypt, which Aristotle considered the source of the Nile. See above p. 107.

<sup>213</sup> Recall “for those dwelling in Egypt and such locations ... Notos is powerful when it begins” (§ 5).

I cannot make sense of the manuscript reading ἐπεὶ τὸ γε σύνεγγυς ἀπαιτεῖ τὸ μέγεθος, especially in relation to the line before it: “but its upper regions are higher, *since indeed power requires proximity*.”<sup>214</sup> (Cf. the translation accompanying Wimmer’s text: *alioqui propinquitat magnitudinem postulat*.) The two other English translations accepted, but took liberties with, this reading: Wood has “Indeed the proximity of its place of origin demands that the force of winds should be exhibited there”; and Coutant has “Somehow or other, proximity (to the source) makes for force.” I have kept and translated the manuscript reading, but obelized it. I suspect that this line is a marginal comment absorbed into the text at an inappropriate place. If I had to guess about the passage on which this was originally a gloss, I would suggest the following two possibilities:

- § 5: ὁ νότος ἀρχόμενος μέγας (“Notos is powerful when it begins”)  
 § 11: τὸ μακρὰν ἡμῶν ἀπηρτησθαι λανθάνουσιν, ὁ δὲ βορέας εὐθὺς ἐν ἡμῖν  
 (“being far removed from us they (sc. Notos winds) go unnoticed,  
 while Boreas is straightaway present among us”).

Re. ἅπερ καὶ φύσιν ἔχει[ν]: Wimmer’s suggested emendation (κατὰ for καὶ) is attractive but ultimately unnecessary. The suggestion of Turnebus, however—ἔχει for ἔχειν—does make sense. I take Theophrastus to be reminding the reader that (to use the language of § 1) the accompanying attributes that are not capacities also have natures, which can be discovered and explained rationally. Here the attribute in question is Notos’ less vigorous blowing in Lower Egypt (or, that it blows differently in Upper and Lower Egypt).

διαμένει δ’ ἐπινεφῇ καὶ αἰθρία τὰ πνεύματα ταῦθ’ ὁμοίως ὥσπερ ἀρτίως ἐλέχθη.

This somewhat enigmatic final line of § 8 does not fit all that well with the rest of the chapter, and I think it is possibly a later addition by Theophrastus himself, or a marginal comment absorbed into the text. I take it to be saying that although Notos blows more vigorously in Upper Egypt and less so in Lower Egypt, this does not affect (or at least not all that much, hence ὁμοίως) what has been discussed earlier (in §§ 4, 6, & 7) about Notos being clear near its origin but cloudy or rainy further north.

<sup>214</sup> I would think ἐπεὶ ... γε requires that this line be taken with what comes before it. See LSJ s.v. ἐπεὶ V. B. Causal 5. with other Particles: “ἐ .... γε [...] more emphatic than ἐ., *since indeed*”. Cf. Denniston (1950, 126).

*On Winds 9*

§9 is entirely devoted to a third puzzle concerning Boreas and Notos, specifically regarding the supposed ‘fact’ that Boreas suddenly overtakes Notos, whereas Notos does not suddenly overtake Boreas. It divides into two parts: The first raises and discusses the problem, and indicates how to solve or explain it; the second (lengthier) part provides the explanation.

τὸ δὲ τὸν βορέαν ἐπιπνεῖν τῷ νότῳ, τὸν δὲ νότον μὴ τῷ βορέᾳ, πρὸς ἐκείνην τὴν αἰτίαν ἀνακτέον (τ)ὴν μερίζουσιν ἑκάτερα κατὰ τοὺς τόπους.

Theophrastus wants to explain the claim that a Notos wind is sometimes suddenly interrupted or overtaken by a Boreas, which blows against it, but not vice versa. This is puzzling, as we would expect the same thing to happen to both winds. (It turns out that, properly understood, the same thing *does* happen to both, so that this is merely an apparent problem.)

Given the emphasis on location and on distance from location of origin in explaining the different attributes of the various winds, it is rather vague of Theophrastus to say that “one must refer to that explanation assigning particular phenomena to their locations.” It becomes clear in the remainder of §9, however, that the explanation that he is referring to here is distance from location of origin plus how people perceive a wind in one such location in contrast to how it is perceived in another (see the end of §3, with commentary).<sup>215</sup>

Coutant & Eichenlaub (1975, 70) describe “the historical background” of this issue as follows:

In antiquity shelter was sought on the south sides of islands, as a sudden swing of the wind toward the south was uncommon. On the other hand, anchoring along the north sides of islands was advised against, as sudden north winds could cast the ships against a rocky coast. This belief probably resulted from the suddenness with which boras and squalls from the north occurred along the Greek coast.

As I did in my commentary on the previous chapter, I here present a relevant chapter from the *Problems* (in this case 26.47, which is quite brief), as evidence that there were other Peripatetics interested in this puzzle, and as a transition

<sup>215</sup> Thus, I think Steinmetz’s (sole) comment on §9 is incomplete: *Die dritte Frage wird schließlich mit dem Abstand vom Ausgangspunkt beantwortet* (1964, 29).

to the remainder of § 9 (since Theophrastus' explanation is similar, if not the same): "Why does Boreas quickly fall upon Notos, but Notos does not quickly (fall) upon Boreas? Is it because the arrival in one case is from nearby, whereas in the other it is from far away? For our dwelling is towards Boreas."<sup>216</sup>

I translate ἐπιπνεῖν (with dative) 'blows against,' which more accurately reflects the phenomenon Theophrastus is describing than the renderings of other translators: Furlanus has *post ... spiret* (cf. Coutant: "blows after"); Turnebus (1600, 2: 42) and Wimmer have *succedit* (cf. Wood "succeeds"). LSJ (s.v. ἐπιπνέω) indicates that this word (with τινί) means 'blow on one' or 'blow furiously upon,' and writes "*blow against*, of one wind *against* another, Thphr. *Vent.* 53". Theophrastus uses the term in § 53 (ἐπιπνεῖ ... αὐτῷ) the same way he does in § 9. The entry in LSJ also has "*blow afterwards*, Arist. *Pr.* [26.46].945b1"; but this example is incorrect, as it there (with the genitive) means 'blows upon' (specifically, "Boreas blows upon Notos").<sup>217</sup> The corresponding term in *Pr.* 26.47 is ἐπιπίπτει (with ἐπὶ), which I translated 'follow on' in my Loeb, but now think should be rendered 'fall upon'. LSJ (s.v. ἐπιπίπτω) writes "*fall upon or over ... II. fall upon in hostile sense, attack, assail, τινί*," and one of its many examples is "of winds *meeting* one another, Arist. *Mete.* [2.6.]364b3" (which is actually quite emphatic: ἐπιπίπτουσι ... καὶ παύουσιν, "fall upon and stop").

Re. (τ)ὴν μερίζουσιν: This modifies ἐκείνην τὴν αἰτίαν ('that explanation'). The manuscripts have ἣν μερίζουσιν, which does not work. As I see it, an editor has two options: (1) Turnebus' τὴν μερίζουσιν, 'that explanation *assigning*' etc.; or (2) ἣν μερίζεται, 'that explanation *which assigns*' etc. I accept the former as slightly less intrusive, though the meaning in either case is the same.

παρ' ἡμῖν γὰρ τοῦτο συμβαίνει καὶ ὅλως τοῖς ὑπὸ τὴν ἄρκτον οἰκοῦσιν· τοῖς δὲ [ἡρὸς] πρὸς μεσημβρίαν ἀνάπαλιν.

In the north (and so, among the Greeks), one perceives or experiences Boreas blowing against Notos (but not vice versa). In the south (e.g. Egypt), however, one perceives Notos blowing against Boreas (but not vice versa). Once this is established (assuming it is true), the problem essentially disappears.

I translate τοῖς ὑπὸ τὴν ἄρκτον οἰκοῦσιν "to those dwelling to the north," which I think here refers to those dwelling below (ὑπό) or beyond the arctic, but still in the north (and so includes Greece).

216 Διὰ τί ἐπὶ μὲν τῷ νότῳ ταχὺς ὁ βορέας, ἐπὶ δὲ τούτῳ ὁ νότος οὐ ταχὺς ἐπιπίπτει; ἢ ὅτι τῷ μὲν ἐγγύθεν τῷ δὲ πόρρωθεν ἢ ἀφίξις; ἢ γὰρ οἴκησις πρὸς βορέαν ἡμῶν.

217 BDAG s.v. does not include this sense of the word.

The manuscripts have τοῦ δ' ἥρος ('but in spring'). Turnebus deleted ἥρος and changed τοῦ δ' to τοῖς δέ, and most editors since (myself included) have agreed with him, because, as Bonaventura (1593, 110) put it: *ἥρος enim nil potest hoc loco significare*. Furlanus prints τοῖς δέ ἥρος, but his translation (*Nam qui ad meridiem vergut*) ignores ἥρος, as does his comment on this passage (1605, 79–80). The word ἥρος appears at the end of § 10, and a line toward the beginning of that chapter seems to be missing it. The erroneous appearance of ἥρος in § 9, and the line that seems to need it in § 10, are eight lines apart in ms. A. Perhaps these scribal errors are connected (though I don't quite see how). And perhaps a further indication of the cause of the confusion is the fact that ἥρος is followed by πρὸς in the manuscripts, and these two words look quite similar (especially in majuscule).

αἴτιον δ' ἀμφοῖν τὸ αὐτό· τοῖς μὲν γὰρ ὁ βορέας, τοῖς δ' ὁ νότος πλησίον, ὥστ' εὐθὺς ἀρχόμενοι ποιοῦσιν αἴσθησιν, εἰς δὲ τὰ πόρρω βραδέως διικνουῦνται.

What remains is for Theophrastus to explain why Boreas sometimes blows against Notos (but not vice versa) near the origin of Boreas, and why Notos sometimes blows against Boreas (but not vice versa) near the origin of Notos. And this he does briefly and simply (though not clearly). The major wind that is far away (Boreas in the south, Notos in the north) comes on slow and steady, whereas the other (as it is close by) comes on suddenly. In Greece, for instance, the slow and steady Notos is suddenly overtaken by Boreas (but never vice versa).

The role of perception in this explanation is merely that people in Greece, say, can perceive Boreas suddenly overtaking Notos, whereas they cannot perceive (from where they are) Notos suddenly overtaking Boreas, as it happens in the south. And this failure to perceive gives rise to the apparent problem or puzzle.

### *On Winds* 10

Steinmetz (1964, 29) describes the *Vorlesungsthema* of §§ 10–12 as *Die Verteilung von Nord- und Südwind auf die Jahreszeiten*. That is certainly one way of looking at it. But §§ 10–11.81 are arguably a continuation of §§ 6.45–9, with § 10 a transition of sorts between the puzzle in § 9 and the one covered in the first part of § 11. In any case, this is how I interpret § 10.

In § 2, Theophrastus said that Boreas and Notos blow most of the time. But most of the time is not all of the time, nor (given the motions of the sun) does

that imply that they blow at the same time or always with the same regularity. In fact, Theophrastus says that there are different seasons during which they blow, and that this can be explained rationally. In the first half of §10, he specifies when Boreas and Notos each blow; in the second half, he offers his explanation.

πλείστων δ' ὄντων ὥσπερ εἴρηται βορείων καὶ νοτίων, ἑκατέρων οἶον τάξις ἐν οἷς χρό-  
νοις μάλιστα πνέουσι κατὰ λόγον ἐστὶ· τοῖς μὲν βορείοις χειμῶνός τε καὶ θέρους καὶ  
μετοπώρου μέχρι τοῦ λήγειν, τοῖς δὲ νοτίοις κατὰ χειμῶνα τὲ καὶ (ἥρος) ἀρχομένου  
καὶ μετοπώρου λήγοντος.

Boreas blows “in winter and summer and until the end of autumn”; Notos blows “throughout winter and at the beginning (of spring) and the end of autumn.” This implies that Boreas does not blow in spring, whereas Notos does not blow through much of spring and in the summer.<sup>218</sup> Regarding when these winds are said to blow, Coutant & Eichenlaub (1975, 70) write: “The statement is remarkably accurate and could result only from carefully kept wind data.”

Re. ἑκατέρων: I think a genitive singular would work just as well (with the same meaning, ‘for each’); but given that both Βορέας and Νότος are masculine, it would have to be ἑκατέρου, not the manuscripts’ ἐκατέρας. Given that the pronoun is directly preceded by βορείων καὶ νοτίων, I think it best to print the genitive plural, as suggested by Turnebus.

The words ἐστὶ τοῖς μὲν βορείοις χειμῶνός τε καὶ θέρους καὶ μετοπώρου are omitted in the Aldine edition. I would have concluded that this was simply a mistake, but Wimmer omits the line as well and marks a lacuna here, and Coutant thought it necessary to bracket ἐστὶ. I think the line makes sense as it is, however, adding punctuation after ἐστὶ. As the line mentions three of the seasons, this is an appropriate place to list the relevant Greek terminology: χειμῶν (winter);<sup>219</sup> ἔαρ (spring); θέρος (summer); ὀπώρα (late-summer);<sup>220</sup> and, μετόπωρον (i.e. after ὀπώρα, and so autumn).

Re. (ἥρος): This word is necessary and supported by *Pr.* 26.16.942a5, which has ἔαρος. But as the form ἥρος appears later in §10, I prefer that version of the genitive singular to ἔαρος (suggested by Turnebus).

218 *Pr.* 26.16 begins: “Why do Notos winds blow in winter and when spring begins and when autumn ends ...?” (Διὰ τί οἱ νότοι πνέουσι μὲν χειμῶνος καὶ ἔαρος ἀρχομένου καὶ μετοπώρου λήγοντος ...;) This chapter does not discuss when Boreas blows.

219 χειμῶν and its cognates can also refer to storms and stormy weather.

220 LSJ (s.v. ὀπώρα): “the part of the year between the rising of Sirius and of Arcturus (i.e. the last days of July, all Aug., and part of Sept.), the latter part of summer.” This word appears only once in *On Winds* (in §55).

οὔτε γὰρ αἱ τε τοῦ ἡλίου φοραὶ συνεργοῦσιν ἀμφοτέροις καὶ ἡ ἀνταπόδοσις γίνεται καθάπερ παλιρροῦντος τοῦ ἀέρος·

This section, and what follows (continuing into § 11), is meant to explain the first part of § 10—that is, why Boreas and Notos each blows during the seasons in which it does. As is often the case in *On Winds*, a complex set or series of causes is explained or described much too tersely. Consequently, some of what follows is guesswork.

The explanation relies on what was presented in § 2: Recall that these winds were said to be the two most powerful “through air being compressed towards the north and the south more than elsewhere,” as the north and the south “are perpendicular to the motion of the sun,” which pushes out air in those directions as it moves. So the sun pushes the air toward the north and the south simultaneously, and this explains these two winds. But here in § 10, Theophrastus is relying for his explanation on where the sun is (on the ecliptic) in relation to the earth as it moves around it: the sun pushing the air, when it is in a certain relationship with the northern hemisphere or southern hemisphere, causes the blowing of Boreas and Notos, but not at identical times. So, while the sun pushes air perpendicular to its path, how that air acts, and its characteristics, will differ depending on where precisely the sun is in relation to the earth—i.e. to the northern and southern hemispheres. And this is because during the year the sun moves along the ecliptic, and thus it is in the north part of the year and in the south the other part.<sup>221</sup> *Pr.* 26.16 confirms this interpretation:

Why do Notos winds blow in winter and when spring begins and when autumn ends ...? Is it because, the sun being nearby, the winds must be set in motion? Now the sun in winter travels towards the south, and when spring begins and when autumn ends it is already producing heat, whereas with respect to the summer it travels towards the north, and leaves those other places ....<sup>222</sup>

942a5–12

221 Further detail would require explaining how Theophrastus accounts for the seasons, given the geocentric model of the universe, and that is too complicated (and unclear) to do here. Suffice it to say, however, that during the year, as the sun moves around the earth on the elliptic, its relationship to the northern and southern hemispheres gradually changes. See above p. 107.

222 Διὰ τί οἱ νότοι πνέουσι μὲν χειμῶνος καὶ ἔαρος ἀρχομένου καὶ μετοπώρου λήγοντος ...; ἢ διότι πλησίον τοῦ ἡλίου ὄντος ἀνάγκη κινεῖσθαι τὰ πνεύματα; ὁ δὲ ἥλιος τοῦ χειμῶνος πρὸς νότον φέρεται, καὶ τοῦ μὲν ἔαρος ἀρχομένου τοῦ δὲ μετοπώρου τελευτῶντος ἤδη θερμαίνει, τὸ δὲ θέρος

The manuscripts have οὔτε γὰρ αἱ τε τοῦ ἡλίου φοραὶ συνεργοῦσιν ἀμφοτέροις: “For the motions of the sun in fact do not cooperate with both (winds) ....” Editors have thought it necessary to remove the negative, thus replacing οὔτε with αὐταὶ (Turnebus), καί (Furlanus), or αὐταί (Coutant). But in fact the negative should be retained (which is not to deny that οὔτε ... τε is somewhat awkward): To say the motions of the sun do not cooperate with Boreas and Notos is I believe Theophrastus’ way of saying that there is not a direct correspondence between when the sun is in the north and south, and when Boreas and Notos blow. That is, it is not the case that Boreas blows when the sun is in the north, and Notos blows when it is in the south, or vice versa. The relationship between the location of the sun and when these winds blow is much more complex (though admittedly Theophrastus does little to make the precise relationship clear).

Re. ἡ ἀνταπόδοσις γίνεται καθάπερ παλirroοῦντος τοῦ ἀέρος: On this “repayment” and “flowing back of air,” see above (pp. 109–111) in my commentary on § 2 (in which I employ Theophrastus’ discussion of winds in his *Metars.* 13—and particularly the account of air flowing into a ‘vacuum’—to explain the flowing back of the air pushed north and south by the sun).<sup>223</sup> I assume that this “flowing back of air” is meant to aid in explaining the different seasons in which Boreas and Notos blow, and particularly to account for the gaps in the blowing of each of these winds: Boreas blows in winter, stops blowing in spring, and then blows for the rest of the year; Notos blows in winter and at the beginning of spring, stops blowing in spring, and begins again at the end of autumn. But again, why they do this is not entirely clear.

ὁ γὰρ ἂν ἀπωσθῇ κατὰ χειμῶνα—πλείους γὰρ ὥς ἐπίπαν βόρειοι πνέουσι—καὶ ἔτι πρότερον τοῦ θέρους ὑπὸ τῶν ἐτησίων καὶ τῶν ἐπὶ τούτοις, ἀνταποδίδεται ἅλιν τοῦ ἡρος εἰς τούσδε τοὺς τόπους, καὶ λήγοντος μετοπώρου καὶ περὶ πλειάδος δύσιν ἀνάλογον.

In the previous passage, Theophrastus reiterates that the sun has a role in both Boreas and Notos, and he characterizes the flowing back of the air in each case as a repayment (ἡ ἀνταπόδοσις). In the present passage, he remarks that the relationship between the time when Boreas blows and when Notos blows is a

πρὸς βορέαν φέρεται, ἐκείνους δὲ ἀπολείπει τοὺς τόπους .... Cf. Arist. *Mete.* 1.9.346b35–347a8, 2.4.361a5–23.

223 Steinmetz (1964, 30–31) explains this part of § 10 simply by referring to the same passage from Thphr. *Metars.* 13, without any further explanation, and thus his discussion does little to clarify this murky chapter.



result of this repayment: “whatever may have been thrust out in winter ... and again before summer by the Etesians and the winds following them, is ‘paid back’ again in proportion into these locations in spring” etc.

Wood renders ὁ ... ἄν ἀπωσθῇ κατὰ χειμῶνα (I explain the ellipsis below) “whatever amount of air may have been expelled [by the N. winds] during the Winter.” I think this is basically correct, though I would leave out the equivalent of his brackets; for this phrase too could be governed by ὑπὸ τῶν ἐτησίων. Cf. Coutant & Eichenlaub: “what is dislodged in the winter ... and earlier in the summer by the etesians” etc.

On the Pleiades, see Hübner (2006). Coutant & Eichenlaub (1975, 70) write that “The Pleiades set in the morning ca. November 9 and set in the evening ca. March 27”; and Sider & Brunschön (2007, 104) write that “This small star cluster with its collective name is here [i.e. at *Sign.* 2.15] treated like a single star. Its rising in the spring (ca. May 11) and setting in the fall (late October) were commonly used to mark the beginning and end of good sailing weather ....”

According to ms. A, this passage begins ὁ γὰρ ἀπωσθῇ. Schneider inserted ἄν before ἀπωσθῇ, and some such word is necessary. Other suggestions are more intrusive: ⟨ὅταν⟩ ἀπωσθῇ (Turnebus); ⟨ὅταν⟩ ἀποθῇ ⟨ὁ ἥλιος⟩ (Bonaventura). (Heinsius simply inserts a lacuna prior to ὁ γὰρ.) But I have replaced γὰρ with γ’ ἄν, as suggested to me by David Sider. The basic meaning is the same.<sup>224</sup>

Schneider thought ἀνταποδίδοται was necessary in place of ms. A’s ἀνταποδιδόσιν, and Wimmer and Coutant agreed. That is likely correct, as I do not see what plural subject Theophrastus could have meant: so “whatever may have been thrust out in winter etc. is ‘paid back’ again” rather than “they (the movements of the sun, the north and the south, Boreas and Notos?) are ‘paid back’ again.”

Wood might be right that ἀνάλογον (which I translate “in proportion”) here means simply “in due course.” Wimmer’s emendation (ἀνὰ λόγον) is unnecessary.

### *On Winds 11*

The first half of § 11 is a continuation of or appendix to § 10, concerning a problem or puzzle involving the supposed lack of Etesians from the south. The second half is the first part of a more formal discussion of the Etesians. As

<sup>224</sup> Smyth § 2826: “ὅς γε ... has a causal force, much like *qui quidem, quippe qui*.” Etc. See also Denniston (1950, 144), on γε where you would expect γάρ.

described earlier, the Etesians (or ‘Annuals’) are north winds that blow during a certain period every year (i.e. during part of the summer), and not for as much of the year as do Boreas winds.

ὅθεν καὶ τὸ θαυμαζόμενον ὥς οὐκ ὄν, διὰ τί βορέαι μὲν ἐτησῖαι γίνονται νότοι δ’ οὐ γίνονται, φαίνεται πῶς συμβαίνειν.

Theophrastus claims that the explanation of the timing of Boreas and Notos (presented in the second half of §10) also explains (ὅθεν καί) the puzzle or problem just referred to. It can also be said to *raise* the problem: for given that account, based as it is on the sun pushing air both north and south, it would be odd for there to be a regular north wind without some corresponding annual south wind. And yet people claim that there are no southern Etesian winds.

οἱ γὰρ ἡρινοὶ νότοι καθάπερ ἐτήσιοι τινές εἰσιν οὓς καλοῦσι λευκόνотους, αἵθριοι γὰρ καὶ ἀσυννεφεῖς ὥς ἐπίπαι.

Theophrastus offers two solutions to this supposed problem. The first (presented in this passage) is that what are known as White Notos winds (i.e. southern winds that are not rainy or cloudy) are in effect Etesian winds, as they blow annually (in spring).

Re. ἐτήσιοι: The reading of ms. A (χιτήσιοι) is a clear corruption of the adjective ἐτήσιοι (as recognized by a second hand in ms. B). This is the reading I accept. (Cf. the opening of *Pr.* 26.2: Διὰ τί βορέαι μὲν ἐτήσιοι γίνονται, νότοι δὲ οὐ;) Recent editors, however, have followed Schneider in emending this further (and plausibly) to the noun ἐτησῖαι, no doubt because Theophrastus always (or in every other case) uses the noun in *On Winds*. The difference is between Theophrastus claiming that “some springtime Notos winds ... are as it were etesian [i.e. annual]” and “... are as it were Etesians.”

The term λευκόνотος is rare, especially prior to the first century BC. Among early Peripatetic works, it appears (outside the present chapter) only in *Arist. Mete.* 2.5.362a11–22 and [*Arist.*] *vs* 973b10–12.

ἄμα δὲ καὶ τὸ μακρὰν ἡμῶν ἀπηρτησθαι λανθάνουσιν, ὁ δὲ βορέας εὐθὺς ἐν ἡμῖν.

The second solution is that these Etesians from the south go unnoticed by those living in Greece. It is important to note that the subject of λανθάνουσιν (which one would naturally take to be the White Notos winds mentioned in the previous line) is in fact an implied ‘Notos winds that are Etesians.’ The White

Notos winds do not seem to go unnoticed by the Greeks, and they are in any case a special kind of wind. Theophrastus, in this second solution, is making a stronger claim: that there are Etesians in the south corresponding to those in the north, but they go unnoticed by those living in the north. (This is another instance of the *On Winds* being terse to the point of ambiguity.)

*Pr.* 26.2 raises the same problem, and its first solution matches the second offered by Theophrastus:

Why are Boreas winds etesian [i.e. annual], whereas Notos winds are not?  
Or are Notos winds as well etesian, but not continuous, because the source  
of Notos is far from us, whereas we live under Boreas?<sup>225</sup>

940a35–37

The same explanation is given at *Arist. Mete.* 2.5.362a11–22 (where Aristotle discusses the White Notos winds). The author of *Pr.* 26.2 continues (940a37–b7), presenting a longer and more complicated solution to the problem, unlike either of those presented in § 11 or by Aristotle.

Turnebus' emendation of *λανθάνουσιν* for *λαμβάνουσιν* is necessary for sense (and the inadvertent change of *μβ* to *νθ* is not difficult to imagine).

ἡ δὲ τῶν ἐτησίων φύσις, διὰ τί τε ταύτην τὴν ὥραν καὶ πῶς οὕτως πνέουσι, καὶ διὰ  
τί λήγουσι τῆς ἡμέρας ληγούσης καὶ νύκτωρ οὐ πνέουσι, σχεδὸν ἐν ταύταις λέγεται  
ταῖς αἰτίαις·

The second half of § 11 and all of § 12 together constitute a brief discussion of the nature of the Etesians. All of this should be compared to *Arist. Mete.* 2.5.361b35–362a11 (which I quote at the beginning of my commentary on § 12) and to *Pr.* 26.51 (which I quote here):

Why do the Etesians always blow in this season and with such strength?  
And why, when the day comes to an end, do they come to an end and not  
blow at night? Is this because the melting of the snow by the sun stops  
towards evening and at night? Now in general they blow when the sun  
begins to master and dissolve the ice in the north. When this begins, the  
Forerunners (blow), but when it is already dissolving the Etesians do.<sup>226</sup>

225 Διὰ τί βορέαι μὲν ἐτήσιοι γίνονται, νότοι δὲ οὐ; ἢ γίνονται μὲν καὶ νότοι, ἀλλ' οὐ συνεχεῖς, ὅτι  
πόρρω ἡμῶν ἢ ἀρχὴ τοῦ νότου ἐστίν, ὑπὸ δὲ τῷ βορέᾳ οἰκοῦμεν;

226 Διὰ τί οἱ ἐτησῖαι ταύτην δὴ τὴν ὥραν αἰεὶ καὶ τοσοῦτοι πνέουσιν; καὶ διὰ τί ληγούσης τῆς ἡμέρας

In the present section of § 11, Theophrastus lays out what is to be explained. In the remainder of § 11 and all of § 12 he (merely) indicates what the explanation is.

There are several problems with the text of this passage (see Steinmetz [1964, 31 n. 5] and the discussions following this paragraph); nevertheless, I think the sense of it is clear enough: Theophrastus wants to explain the nature of the Etesians, and this amounts to explaining why they blow when they do (i.e. in a particular period in the summer), why (or how) they blow in the way they do (more on what that might mean shortly), and why they blow during the day but not at night. In the last sentence of § 11, he sketches the general cause of the blowing of these winds, and in § 12 he offers a brief explanation of why they blow during the day but not at night, and why they blow in an irregular manner.

Re. ἡ δὲ τῶν ἐτησίων φύσις: Furlanus either misread, or proposed a minor emendation for, the manuscript reading (ἦδε for ἡ δὲ): “This is (the) nature of the Etesians ....” In fact, ἡ δὲ is the clear reading of ms. A. Every editor since Furlanus, however, has printed ἦδε (with no indication that this is an emendation).<sup>227</sup> Of course, in the original majuscule they would have been identical. Wimmer may be right to bracket this whole phrase,<sup>228</sup> as it does not make for a smooth fit, and some scribe or scholar may well have commented, in the margin, that when the Etesians blow and in what manner etc. is ἡ τῶν ἐτησίων φύσις. Steinmetz (1964, 31 n. 5) thinks this is plausible, but prefers to mark a lacuna here. Based on the parallel discussions in *Pr.* 26.51 and *Arist. Mete.* 2.5.361b35–362a11, he thinks the actual subject of λέγεται is not ἡ τῶν ἐτησίων φύσις but an unstated οἱ ἐτησῖαι.

If one retains ἡ δὲ τῶν ἐτησίων φύσις, then the δὲ following διὰ τί in the manuscripts should be bracketed or emended to τε. I have a slight preference for the latter.

Re. πῶς οὕτως: I have left the manuscript reading untouched (“*how* [they blow] *in this way*”), though I do think the ‘original’ text may well have been something different. One could make a case for bracketing either word (as a gloss on the other?): “*how* they blow” (deleting οὕτως) or “*why* they blow in this season and *in this way*” (deleting πῶς, and taking οὕτως πνέουσι with διὰ τί). I think the latter makes more sense; but with the other possibility in mind,

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λήγουσι καὶ τῆς νυκτὸς οὐ πνέουσιν; ἢ τοῦτο μὲν διὰ τὸ τὴν χιόνα τηκομένην παύεσθαι ὑπὸ τοῦ ἡλίου πρὸς ἐσπέραν καὶ τὴν νύκτα; ὅλως δὲ πνέουσιν, ὅταν ὁ ἥλιος κρατεῖν καὶ λύειν ἄρξηται τὸν πρὸς βορέαν πάγον. ἀρχομένου μὲν οὖν οἱ πρόδρομοι, ἦδη δὲ λυομένου οἱ ἐτησῖαι.

227 Gigon is an exception, in that he accepted ἦδε, but recognized that ms. A had ἡ δὲ.

228 He does this in his translation, not his text (1866): [*Hæc etesiarum natura.*].

see the earlier discussion of πῶς (pp. 77–78). In any case, if πῶς and/or οὕτως is the correct reading, then Theophrastus is likely referring to the irregularity of the Etesians, which he discusses in § 12: why or how they blow in this way (i.e. irregularly). Another possibility, however, if the καί immediately following πῶς οὕτως πνέουσι is exegetical, is that he is saying: why or how they blow in this way, i.e. “why they come to an end when the day comes to an end” etc. Alternatively, one could follow Schneider, Wimmer, and Coutant, and take πῶς οὕτως to be a corruption of τοσοῦτοι (the reading in the parallel passage in *Pr.* 26.51). Coutant translates τοσοῦτοι “in such strength,” Wood “for a particular number of days.” On the one hand, τοσοῦτοι is not radically dissimilar from πῶς οὕτως paleographically, and τοσοῦτοι is smoother Greek than πῶς οὕτως. On the other, there is no discussion in *Pr.* 26.51 of the irregularity of the Etesians, which may explain this slight variation in what is otherwise virtually identical language.

The Aldine edition omits the οὐ of the manuscripts, and this is surely a mistake (and perhaps even a typographical error), as *Pr.* 26.51.946a12 and *Arist. Mete.* 2.5.362a1–2 make clear. Some editors, however (e.g. Schneider and Wimmer), though aware of the manuscript tradition, follow the Aldine and bracket οὐ.

ὥς ἄρα ἡ μὲν πνοὴ γίνεται διὰ τὴν τῆς χιόνος τήξιν· ὅταν μὲν οὖν ὁ ἥλιος ἄρξηται λύειν τὸν πάγον καὶ κρατεῖν, οἱ πρόδρομοι, μετὰ δὲ ταῦτα οἱ ἐτησίαι.

This, the last line of § 11, indicates briefly the general explanation or cause of the nature of the Etesians: why they blow, when they blow, and in what manner. All of this depends on the melting of the snow, which in turn depends on the sun and where it is in relation to a particular location. Cf. *Pr.* 26.51 (quoted above). What is not explained is why the melting of the snow does this, though the explanation must involve the production of water vapor. Perhaps Theophrastus was relying on an account in his *Metarsiology* (see 13.2–14) and/or in Aristotle’s *Meteorology* (see 2.5.361b35–362a11).

I take ὅταν ... ὁ ἥλιος ἄρξηται λύειν τὸν πάγον καὶ κρατεῖν to be describing two actions that occur simultaneously—in fact, they are corollary or even identical. The sun begins to melt the frost and achieve mastery (perhaps even ‘begins to melt the frost, i.e. achieve mastery’). He cannot be saying that *first* the sun begins to melt the snow and *then* it begins to achieve mastery. That implication, however, may have led the author of *Pr.* 26.51 to alter the text to clarify what happens (ὅταν ὁ ἥλιος κρατεῖν καὶ λύειν ἄρξηται τὸν ... πάγον, 946a14–15). It certainly led Schneider to emend our text: κρατεῖν καὶ λύειν τὸν πάγον for λύειν τὸν πάγον καὶ κρατεῖν. (An editor ought to take this suggestion seriously, though I have resisted accepting it.)

The sun begins to achieve mastery (or to master the snow) when the heat it produces on earth reaches such a point that the snow (or frost) begins to melt. This does not occur at night, of course; and even on some winter days—I assume if there are clouds or if the temperature is particularly cold—the sun cannot begin to achieve mastery and so the snow (or frost) does not begin to melt. Achieving mastery fully (versus beginning to achieve mastery) is when the snow or frost has completely melted (and perhaps even become water vapor) and/or when (during the course of the year) the temperature is such that frost no longer appears and snow no longer falls. In fact, it is not entirely clear whether Theophrastus is talking about the sun achieving mastery during the course of a particular day or a particular time of year. Perhaps the mastery he describes applies (in different ways) to both. But given that he goes on, in the next line, to mention when the Forerunners and the Etesians appear, he especially has in mind the seasonal mastery of the sun over frost and snow. (See also §40.) In §12, he turns to explaining why the Etesians stop blowing at night, which involves the sun's mastery (or lack thereof) on a daily scale.

οἱ πρόδρομοι is the only reference to these winds—which are precursors to the Etesians—in all of Theophrastus.<sup>229</sup> There is one reference in Aristotle (*Mete.* 2.5.361b24) and three in the *Problems* (25.16.939b11, 26.12.947b7, 26.51.946a15). Aristotle says they blow from the rise of Orion (early June) to the coming of the Etesians (in July). Coutant & Eichenlaub (1975, 71) comment: "The ancients differed as to when the precursors [i.e. Forerunners] blew. Modern data indicate they begin in early May."<sup>230</sup> Hünemörder's entry on the Forerunners in *Brill's New Pauly* (2006d) is brief enough to quote in its entirety:

The north winds which blow for seven days before the heliacal rise of Sirius in the Mediterranean region. Compared with the later Etesiai, they are supposedly cooler. The seven days—like their purported relationship with Sirius and the nine days from their onset until the Etesiai—are arbitrarily determined. Their dates vary between 7 and 23 July (Julian calendar) (= 4–20 July in the Gregorian calendar).

229 There are six occurrences of οἱ πρόδρομοι in *CP* 5 (1.5 [*bis*], 1.7, 1.8, 1.11, 2.3), but there it in every case refers to fruit that appears prematurely.

230 Here is another view: In the entry under the 4th of Epiphi (Coptic calendar = June 28), Ptolemy's *Phases* states: "According to Democritus a notos wind and wet in the morning, then the northern forerunners for seven days" (trans. Lehoux 2007, 305; slightly revised).

Some verb (e.g. γίνονται or πνέουσι) must be supplied here (cf. *Pr.* 26. 51.946a15), but need not be inserted into the text—which Turnebus seems to have suggested doing (as he wrote γίνονται above οἱ πρόδρομοι in the margins of Vascosanus).

Re. τήξιν: The minor correction by a second hand in ms. B (τήξιν for πήξιν) is surely right: ‘melting’ is a much better fit than ‘solidity’ (or ‘freezing’). There is a similar correction in §12.

### *On Winds 12*

As I mentioned above, this chapter continues Theophrastus’ discussion of the nature of the Etesians, and specifically of what explains their nature.

τοῦ δ’ ἅμα τῇ καταφορᾷ τοῦ ἡλίου λήγειν καὶ νύκτωρ μὴ πνεῖν αἴτιον τὸ τὴν χιόνα τηκομένην παύεσθαι δυομένου, καὶ νύκτωρ μὴ τήκεσθαι δεδυκότος.

Coutant & Eichenlaub (1975, 71) comment: “The diurnal variability is one of the most marked features of the etesians.” On the sun achieving mastery (or the opposite) during the day, see also §18 (and the end of my commentary on §11, pp. 163–164).

As mentioned, Theophrastus *indicates* the cause without explaining it—particularly, without explaining why the winds blow during the day but not at night. Perhaps the dearth of detail is owing to his drawing on (and expecting his audience to know) the following relevant passage from Arist. *Mete.* 2.5:<sup>231</sup>

(The Etesians) blow during the day and stop at night. And the reason is that when (the sun) is near it dries (the earth) before the exhalation comes to be; but when it has withdrawn a little, the exhalation and the heat are at this time in the right proportion, so that the frozen water is melted and the earth, dried by its own heat and by the (heat) of the sun, as it were gives off smoke and gives off fumes (τύφεσθαι καὶ θυμιάσθαι). But at night (the Etesians) cease, because what is frozen stops melting owing to the cold of the nights. And neither what is frozen nor what lacks dryness give off fumes, but when what is dry contains moisture, it gives off fumes when it is heated.<sup>232</sup>

362a1–11

<sup>231</sup> Or its parallel in Theophrastus’ complete *Metarsiology* (if there was such a discussion).

<sup>232</sup> καὶ τὰς μὲν ἡμέρας πνέουσι, τὰς δὲ νύκτας παύονται. αἴτιον δ’ ὅτι πλησίον μὲν ὦν φθάνει ξηραίνων

As explained in my Introduction, it is unclear to what extent or in what form precisely Theophrastus accepted Aristotle's exhalation explanation of wind—which is clearly at work in this passage—and how much of it he rejected. But in whatever form he accepted it, that is no doubt behind his explanation of why the Etesians stop blowing at night (usually—see the next section).

A couple of minor textual issues involving manuscript variations: (1) This sentence contains a rare instance of ms. D (χιόνα) differing from ms. A (χιόναν). The reading of D is surely right, as χιόνα is the proper feminine accusative singular of χιών. (2) The reading of ms. S, δεδυκότος (from δύω, 'sink' or 'set'), is an obviously necessary correction of ms. A's δεδοικότος (from δείδω, 'fear' or 'dread').

οὐ μὴν ἀλλ' ἐνίοτε πνέουσιν ὅταν πλείων ἢ τῆξις γίνηται· καὶ γὰρ τῆς ἀνωμαλίας αἴτιον τοῦ(το ὑπο)ληπτέον.

This sentence is transitional between the explanation of the cessation of the Etesians at night and the explanation of their irregularity (which comes in the passage that follows).

I take Theophrastus to be saying that when, during the day, the melting has been greater than usual (how much greater is of course a detail not provided, and likely difficult to quantify), the effects of that melting—in the form of the blowing of the Etesians—continues even after the sun goes down. Simply put: the sun causes the melting which causes the wind, and in some cases the melting continues to be a cause even after the 'first' cause (the sun) is no longer operative.

Re. ἢ τῆξις γίνηται: (1) On the minor correction by a second hand in ms. B (τῆξις for πῆξις), see above p. 165. (2) Though the emendation in ms. z (γένηται, accepted by Schneider, to whom Coutant attributes the reading) is arguably an improvement, the reading of ms. A (γίνηται) need not be changed. In context, there is little difference between 'the melting *is* greater' and 'the melting *has been/was* greater'. (I suspect Furlanus' γίγεται may be a mistake, and not an actual suggested emendation.)

Re. τῆς ἀνωμαλίας αἴτιον: On regularity and irregularity as properties of winds, see above pp. 192–193. αἴτιον should be translated '*a* cause' (*vel sim.*), as Theo-

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πριν γενέσθαι τὴν ἀναθυμίασιν· ὅταν δ' ἀπέλθῃ μικρόν, σύμμετρος ἤδη γίγνεται ἡ ἀναθυμίασις καὶ ἡ θερμότης, ὥστε τὰ πεπηγότα ὕδατα τήκεσθαι, καὶ τῆς γῆς ξηραίνομένης ὑπὸ τε τῆς οἰκείας θερμότητος καὶ ὑπὸ τῆς τοῦ ἡλίου οἷον τύφεσθαι καὶ θυμιάσθαι. τῆς δὲ νυκτὸς λωφῶσι διὰ τὸ τὰ πεπηγότα τηκόμενα παύεσθαι διὰ τὴν ψυχρότητα τῶν νυκτῶν. θυμιάται δ' οὔτε τὸ πεπηγός οὔτε τὸ μὴδὲν ἔχον ξηρόν, ἀλλ' ὅταν ἔχῃ τὸ ξηρόν ὑγρότητα, τοῦτο θερμαίνομενον θυμιάται.



phrastus believes that a correct or full explanation of the winds, and their attributes, will require many causes: the sun, the location, distance from location, in the present case the melting of snow, etc. Cf. Coutant, “the reason,” and Wood, “the cause.”

Re. τοῦ(το ὑπο)ληπτέον: Turnebus’ suggestion for filling the lacuna here perfectly fits the length of the lacuna and the sense of the passage.

(ὅτε) μὲν γὰρ μεγάλοι καὶ συνεχεῖς, ὅτε δ’ ἐλάττους καὶ διαλείποντες πνέουσι, διὰ τὸ τὰς τήξεις ἀνωμαλεῖς γίνεσθαι. κατὰ δὲ τὴν ὕλην ἢ φορά.

The remainder of § 12 is difficult to read in ms. A, and thus one must here rely more than usual on ms. D. Otherwise, I found only one emendation necessary: following Turnebus, I insert (ὅτε) at the beginning, as ὅτε δ’ seems to require a corresponding ὅτε μὲν.

The irregularity of the Etesians refers (as we saw in the previous section) to the fact that they on occasion *do* blow at night, and (as Theophrastus makes clear here) to the fact that they sometimes “blow powerful and continuous, sometimes weaker and intermittent.” These irregularities are explained (primarily) by the irregularity of the melting of the snow.

I translate κατὰ δὲ τὴν ὕλην ἢ φορά “The motion is in accordance with the matter.” Coutant & Eichenlaub (1975, 71) comment: “It appears that the material of the winds here is moisture, contrary to *Meteor.* [2.4.]360a12–13.” I agree that Theophrastus is here referring to the amount of snow (or more precisely, the amount of melting snow) and so to moisture; but this need not contradict Aristotle (as much) as Coutant & Eichenlaub suggest. For in *Mete.* 2.5 (quoted above), Aristotle refers to exhalations arising from melted snow; and there is every reason to believe that Theophrastus also has in mind exhalations arising from melted snow, which is the same as (or similar to or serves the same function as) Aristotle’s exhalations. Cf. Bonaventura (1593, 129): *Materiam vocat exhalationem, atq.; praeclare admodum concludit, pro materiae ratione venti esse motum.*

ταύτην δὲ τὴν ἀνωμαλίαν ἐνδέχεται καὶ τοῖς τόποις καὶ τῷ σύνεγγυς ἢ πόρρω καὶ ἄλλαις τοιαύταις διαφοραῖς συμβαίνειν.

“This irregularity” is explained primarily by the irregularity of the melting of the snow, but other causal factors may be involved: in some cases, the location, the proximity or distance (presumably from the origin of the Etesians), and “other such variations.” I assume the other variations are: the elevation of the location, how far north or south the location is (and thus how cold

or warm), how much snow has fallen, whether the sky is cloudy or clear. These factors affect the rate of the melting of the snow or might otherwise influence the nature of the Etesians at a particular location on a particular day.

### *On Winds 13*

§§13–14 form a unit or otherwise go together. Steinmetz (1964, 33–34) labels their theme *Wechsel der Wind- und Wetterverhältnisse in größeren Zeiträumen*. I take them to be part of (or perhaps more accurately, two related addenda to) Theophrastus' account of the Etesians (which began in §11). Both concern the relationship between the Etesians and climate change. Steinmetz writes that *Die Methode Theophrasts kennzeichnet in dieser Vorlesung das Verfahren, aus Sagen und Mythen den historischen Kern herauszuschälen* (1964, 34). I would say that Theophrastus considers 'historical' endoxa in §13, and in §14 evokes myth as part of a thought experiment. (I am not sure how interested he is in extracting truth from myth).

§13 divides into two parts: (1) a protasis (with its apodosis postponed) briefly presenting a relevant *endoxon* about Cretan weather, the primary proof said to support it, and what follows about the Etesians if this *endoxon* is true; (2) further discussion of the evidence supporting this belief, and then the repeated protasis with its apodosis.

εἰ δ' οὖν ἀληθές ὃ λέγουσιν ἄλλοι τε καὶ οἱ περὶ Κρήτην, ὥς ἄρα νῦν μείζονες οἱ χειμῶνες καὶ χιῶν πλείων πίπτει, τεκμήρια φέροντες ὥς τότε μὲν ὥκητο τὰ ὄρη καὶ ἔφερε καρπὸν καὶ τὸν σιτηρὸν καὶ τὸν δενδρίτην, πεφυτευμένης καὶ διειργασμένης τῆς χώρας.

To some extent, the content of (1) is straightforward: those living in Crete (and others as well, perhaps those who have traveled regularly to the island and/or live nearby), claim that the winters in Crete are greater (μείζονες, which I translate 'longer', though it could also or rather mean 'more severe') than they used to be, and (connected to this) that there is more snowfall than there used to be. The proof (τεκμήρια) of this is that there are lands around the mountains of Crete that used to be inhabited and cultivated, but (the implication is) they no longer are. (This implication is made explicit and further discussed in the second part of §13.) There is an ambiguity, however, at the heart of the basic claim being made—that if the winters are worse and more snow falls in Crete, then the Etesians too must now be more numerous. For this can be taken in

either of two ways, depending on whether Theophrastus is saying the greater snow *is causing* the more numerous Etesians or *is caused by* the more numerous Etesians.

One might take § 13 to be saying that if melting snow is a primary cause of the Etesians blowing (how and when they do), and there is now more snowfall in Crete than there used to be, then it follows logically that “the Etesians too must necessarily be more numerous” nowadays on and around Crete (‘more numerous’ meaning blowing for a longer duration during its season and/or during each day in that period). (See Coutant & Eichenlaub 1975, 72.) But there is no reason to think that Theophrastus is claiming that snowfall *on Crete* is the cause of Etesians blowing on Crete (or of how numerous they are). So, he in fact is saying that the Etesians must now be more numerous (and they are rain-bearing north winds, § 4), which explains the greater snowfall on Crete (especially in the mountains). Why more numerous Etesians, which blow in the summer, would have this effect on Cretan winters is not clear.

§ 13 is a very early (perhaps the earliest) reference to climate change. As for the accuracy of this *endoxon*, note Lamb (1966, 6), cited in Coutant & Eichenlaub (1975, 72):

*Decline from the Climatic Optimum* was at first gradual but became abrupt and accompanied by some catastrophe to some of the human civilizations of the time about 500 BC. The later stages of the Climatic Optimum had on the whole been drier and gradually cooler, with pines gaining ground at the expense of the oak forests in Europe .... About 500 BC began a rainy, cool period but (it has been suggested) with mild winters.

On the effects of winds on plants, see §§ 38, 43, 45, 58. On plant growth where and when the Etesians blow, see CP 3.3.3.

I do not think it necessary to follow Turnebus and emend ms. A's ῥῥητο (pluperfect) to ῥῥετο (imperfect), despite the fact that ἔφερε is imperfect: “the mountains once *had been inhabited* and *bore* (i.e. were bearing) crops” etc.

Re. σιτηρόν: I follow most editors since Turnebus and emend the manuscripts' σίδηρον (‘iron’) to σιτηρόν (‘grain’). The reading of the manuscripts is not impossible, however, and if accepted the phrase should be rendered “crops and iron and fruit-tree” (though in that case, one would expect a τόν before καρπόν). Bonaventura (1593, 130) writes: *Herodotus Halicarnasseus in Homeri vita testatur, carminibus ipsius Homeri in medium adductis, ferrum in Ida monte olim effodi solitum*. The text he refers to is [Herodotus], *Life of Homer* 20, according to which much iron is produced near Mt. Ida—only this is a reference to the Trojan Mt. Ida, not the Cretan one referred to in our passage.

Re. τὸν δενδρίτην: LSJ (s.v. δενδρίτης): “[the fruit] of a tree.” This rare word appears nowhere else in Theophrastus, *including in his botanical works*, and that should give an editor pause, though in the end I think it best to print the manuscript reading. I translate it ‘fruit tree’. Bonaventura (1593, 130) writes of it *Inusitata vox, & fortasse deprauata*, but does not rule out its coming from Theophrastus, adding, however, *unde non incongrue legi fortasse posset τὴν δενδρώδη*—δενδρώδης meaning ‘tree-like’ (LSJ s.v.). Although only slightly less rare, this word does appear twice in Theophrastus (*HP* 1.3.4, 6.7.3) and once in Aristotle (*Juv.* 467b1). I wonder, however, whether the original text was not something less exotic: τὸ δένδρον or τὰ δένδρα. The basic meaning, in any case, is clear.

§13 begins with a conditional (εἰ δ’ οὖν ἀληθές), but there is no consequent answering the antecedent. At the end of §13, the conditional is repeated (εἰ δ’ ἔστιν ἀληθὴς), but this time a consequent is supplied: ἀναγκαῖον καὶ τοὺς ἐτησίας εἶναι πλείους. I was tempted to ‘fix’ this, but in the end thought it best not to tamper with the manuscript. Perhaps this is a further indication of the unpolished state of the work.

ἔστι γὰρ πεδία ἐν τοῖς Ἰδαίοις ὄρεσιν εὐμεγέθη καὶ ἐν τοῖς ἄλλοις, ὧν νῦν οὐδ’ ὅτιοις γεωργοῦσι διὰ τὸ μὴ φέρειν. τότε δ’ ὥσπερ εἴρηται καὶ ἐπώκου, ὅθεν καὶ ἡ νήσος πλήρης ἦν ἀνθρώπων, ὁμβρῶν μὲν γενομένων κατ’ ἐκείνον τὸν χρόνον, πολλῶν χιόνων δὲ καὶ χειμῶνων μὴ γενομένων. εἰ δ’ ἔστιν ἀληθὴ ταῦτα καθάπερ λέγομεν, ἀναγκαῖον καὶ τοὺς ἐτησίας εἶναι πλείους.

I assume the people who are the source of this *endoxon* are relying in part on direct perceptual evidence (of two kinds)—that these lands are no longer inhabited and do not produce crops, and that there are signs of former human habitation (and perhaps cultivation)—and in part on stories passed down about former inhabitants of these lands.

On the accuracy of this passage, note the following, from Rackham et al. (2010, 276–277):

[The Nidha Plain] (c. 130 ha), high on Mount Psiloritis,<sup>233</sup> is a smooth green sheep-pastured surface carpeted with the remarkable plant *Polygonum idaeum*, which is found only on this and its satellite plains. The plain lies directly below the Idaean Cave, a major ritual site from Late Neolithic to Roman times, and above the Neopalatial site of Zomin-

233 Mt. Ida, now called Mt. Psiloritis (‘high mountain’), is the highest mountain on Crete.

thos,<sup>234</sup> but has not been archaeologically surveyed. The soils are derived either from loess or limestone residue and do not indicate catastrophic alluviation. At 1450m the plain is well above the limit of modern cultivation; additionally it is probably a tremendous frost-hollow. However, it is the most likely locality for Theophrastus's remark—written in the fourth century BC—a rare example of an ancient writer mentioning climate change ....

The authors quote our passage and then add: "This cannot be confirmed archaeologically. Only in one corner is there any trace of field boundaries, rows of old hawthorns that may represent buried hedges."

Re. ἐν τοῖς Ἰδαίοις ὄρεσιν: I suppose it is just possible that Theophrastus wrote ἐν τοῖς ἰδαίοις ὄρεσιν (the reading of ms. A)—"among *their own* mountains" (i.e. the mountains of Crete). But it is much more likely that one letter has dropped out, and (as Schneider [1821, 5: 159] suggested) the original was Ἰδαίοις (from Ἰδαῖος, *of Ida* [LSJ s.v.]). Cf. ἐν Κρήτῃ γούν φασιν ἐν τοῖς Ἰδαίοις ὄρεσι κτλ. (*HP* 4.1.3). Moreover, the καὶ ἐν τοῖς ἄλλοις that follows implies that what precedes it is a specific mountain or mountain range. A second hand in ms. B is the first recorded emendation of ἰδαίοις (to Ἰδαίης, which via ms. S became the reading in the Aldine). In this context, Ἰδαίης has the same meaning as Ἰδαίοις, but the latter is better paleographically.

Three minor textual issues, in the clause beginning ὁμβρων μὲν γενομένων: (1) Turnebus' emendation of the manuscripts' χρόνων to χιόνων is necessary. The original scribal error is understandable in context (... χρόνον πολλῶν χιόνων ...). (2) Note the correction in ms. D (χειμώνων) of the mistaken reading in A (χειμόνων), one of the few differences between these two manuscripts. (3) Re. ms. A's γενομένων ... γινομένων: γενομένων is an aorist participle, or a present participle (demotic); γινομένων is a present participle, or an aorist participle (demotic). These should be standardized. Turnebus recommends changing the first to γινομένων; but as the aorist is necessary, I follow ms. z and emend the second.

234 Zominthos was discovered in the 1980s, by the Greek archeologist Yannis Sakellarakis.

### *On Winds 14*

I divide § 14 (which, as stated above, is connected to § 13) into five small parts (of one sentence each). It is unclear to me how precisely they are all related.

εἰ δέ ποτ' ἐξέλιπον καὶ Ἀρισταῖος αὐτοὺς ἀνεκαλέσατο, θύσας τὰς ἐν Κέῳ θυσίας τῷ Διῖ, καθάπερ μυθολογοῦσι, κάτομβρα μὲν ἂν εἴη τὰ ἐπιχειμέρια οὐχ' ὁμοίως οὐδὲ χιονώδη.

In § 13, Theophrastus argues that since there is more snow in Crete now than in the past, the Etesians (which caused this) must now be more numerous than in the past. In the first sentence of § 14, he is claiming that if the Etesians were again to become less numerous, that too would have consequences for the temperature and precipitation of Crete. But his specific point seems to be that if the Etesians stopped blowing on Crete entirely, the result would not be a return to fruitful cultivation and human habitation, as of old. That would require fewer Etesians, not their complete absence.

It appears that Aristotle discussed the Aristaeus-Etesians connection in his *Constitution of the Ceans* (see frs. 511 & 611.27 Rose). According to the latter 'fragment' (Heraclides of Lemnos' epitome of Aristotle's *politeiai* or *Excerpta Politiarum* § 27), Aristotle claims that people "say that Aristaeus was taught by nymphs the knowledge of sheep and cattle, and beekeeping by Brison/the Brisai." And then he seems to add (I think the text is incomplete or otherwise corrupt) that people also say that Aristaeus was taught that when there is destruction of plants and animals, either it is caused by the Etesians or relief comes from the Etesians.<sup>235</sup> Perhaps the original text said he was taught to beckon these winds.

<sup>235</sup> Ἀρισταῖον δὲ φασὶ μαθεῖν παρὰ μὲν νυμφῶν τὴν προβάτων καὶ βοῶν ἐπιστήμην, παρὰ δὲ Βρίσων/Βρισῶν τὴν μελιουργίαν. φθορὰς δὲ οὐσης φυτῶν καὶ ζώων διὰ τὸ πνεῖν ἐτησίας .... (I follow Müller [1848, 2:214] in marking a lacuna at the end of this passage.) Whether it's 'Brison' or 'the Brisai' depends on whether the Greek is Βρίσων or Βρισῶν. If it is the former, I don't know who this person Brison is. If it's the latter, as I think likely, then according to *Etym.M.* s.v. Βρίσαι (= fr. 511.3 Rose), this is a group of nymphs, perhaps named from βλίσαι (from βλίττω: to gather honey or honey combs): νύμφαι οὕτω καλούμεναι, ἣ ὅτι βλίσαι καὶ γὰρ μελισσοουργίαν αὐται τὸν Ἀρισταῖον ἐδίδαξαν τροπῇ τοῦ λ εἰς ρ. ἢ παρὰ τὸ βρύειν, ὃ ἐστὶν ἀνθεῖν, τὴν ἐλαίαν, ἥς τὴν ἐργασίαν καὶ αὐτὴν ὑπέδειξαν Ἀρισταίῳ τὴν διὰ τῆς ἀμβροσίας. ἢ ἀπὸ τοῦ βρίξαι καὶ κατακοιμίσαι αὐτὸν καὶ καταβαυκαλίσαι, ὅτι ἐτιθήνουν αὐτόν.

In any case, the Aristaetus-myth makes Theophrastus' point perfectly. For information on this myth, see Apollonius Rhodius' *Argonautica* 2.498–527, the most relevant parts of which I quote here:

When from the sky Sirius was scorching the Minoan islands, and for a long time the inhabitants had no relief, then they summoned (Aristaeus) on the instructions of Apollo to ward off the pestilence. And (Aristaeus) left Phthia at the command of his father (i.e. Apollo) and settled in Ceos .... And he built a great altar to Zeus Icmaeus (i.e. 'of rain') and duly performed sacrifices on the mountains to that star Sirius and to Zeus himself, son of Cronus. And for this reason the winds sent by Zeus cool the land for forty days, and still today in Ceos priests make sacrifices before the Dog-Star [= Sirius] rises.<sup>236</sup>

RACE'S LOEB trans., slightly modified

For an account of this ritual, see Burkert (1983, 109–115), and note especially Heraclides of Pontus fr. 126 Schütrumpf (= Cic. *Div.* 1.57.130). See also Diodorus Siculus 4.81–82.

Steinmetz (1964, 34) sees a connection between the discussion of climate change and sacrifice in §14, and Theophrastus' account of the transition from a vegetarian to a carnivorous diet in *On Piety* (see frs. 584–585 FHS&G). As far as I can tell, however, all one can say is that such a connection is possible.

ἐπιχειμέρια is *hapax legomenon*: forms of the word do not even appear in later lexicographical works. But χειμέριος (*wintry, stormy*), from which it is derived, is quite common. I try to capture this meaning in my translation: “the areas exposed to storms.” But its meaning may be broader than that, namely, any areas exposed to and so influenced by the Etesians: thus “the parts exposed to

236 ἦμος δ' οὐρανόθεν Μινωίδας ἔφλεγε νήσους  
Σείριος οὐδέ τι δηρὸν ἔην ἄκος ἐνναέτησιν,  
τῆμος τόνγ' ἐκάλεσσαν ἐφημοσύνης Ἑκάτοιο  
λοιμοῦ ἀλεξήτῃρα. λίπεν δ' ὄγε πατρός ἐφετμῇ  
Φθίην, ἐν δὲ Κέῳ κατενάσσατο ....  
καὶ βωμόν ποιήσε μέγαν Διὸς Ἰκμαίοιο,  
ἱερά τ' εὖ ἔρρεξεν ἐν οὔρεσιν ἀστέρι κείνῳ  
Σειρίῳ αὐτῷ τε Κρονίδῃ Δίῃ. τοῖο ἔκητι  
γαῖαν ἐπιψύχουσιν ἐτήσιοι ἐκ Διὸς αὔραι  
ἡματα τεσσαράκοντα, Κέῳ δ' ἔτι νῦν ἱερῆς  
ἀντολέων προπάροιθε Κυνὸς βέζουσι θυηλάς.

the weather” (Wood) and “the exposed territories” (Coutant). Turnebus (1600, 2: 43) translates this *tum frigidi tractus*.

ταῦτα δ' εἴ τινα ἔχει[ν] διαλλαγήν εἴτε τεταγμένην εἴτ' ἄτακτον, εἴη ἂν καὶ τῶν πνευμάτων παύλα καὶ μεταλλαγή κατὰ τοὺς αὐτοὺς χρόνους.

Theophrastus claims in §13 that there being numerous Etesians (whatever ‘numerous’ means) leads to colder and snowier winters in Crete, and at the beginning of §14 he suggests that if there were no Etesians blowing on Crete the island would be scorched and its inhabitants would be praying to the gods to recall these winds.<sup>237</sup> The implication is that the milder climate on Crete, in the distant past, came from a more moderate number of Etesians (again, however one ‘counts’ them).

If this line was not originally a marginal gloss (which I think it may very well have been),<sup>238</sup> then Theophrastus is likely going beyond what he has said regarding the Etesians and Crete, to make a more general point. But what that point is is not clear. Much depends on the referent of ταῦτα, which is unclear. (I leave it ambiguous in my translation [“these”], as do Turnebus and Furlanus in their Latin translations.) It cannot refer to the Etesians (as that would require the masculine οἱ, and in any case would not help make sense of the passage). Coutant translates it “these areas”, and that makes sense conceptually, though it counts against this rendering that ταῦτα is neuter, and so cannot be taken to imply the masculine τόπους (Theophrastus’ standard term for location). Wood renders ταῦτα “rain and snow,” which I believe is on the right track (though he should have written “these [i.e. rain and snow]”). I think ταῦτα here refers even more broadly to any weather conditions or consequences at all (rain, snow, cold, abundant crops, scorched earth, etc.).

The point of the line, then, as best I can make sense of it, is that whenever there is a variation in these factors—whether it results in some new orderly weather pattern (as the present-day snows on Crete), or is some occasional or one-off irregularity—there is *some* corresponding (“at the same times”) variation in the nature of the winds (whether as a cause or an effect or both). That is, the wind involved ceases or changes.<sup>239</sup>

237 In the course of presenting a teleological argument for the existence of the gods, Cicero (*ND* 2.131) mentions the relief the Etesians give to humans.

238 One reason for thinking so is that in the third sentence of §14, Theophrastus returns to the Aristaeus-myth, and one can move fairly seamlessly from the first sentence to the third.

239 I take the καὶ in παύλα καὶ μεταλλαγή to be “Linking alternatives” (see Denniston 1950, 292).



This perhaps clarifies why Theophrastus did not think he was obliged to explain the specific causal connection between the change in a summer wind in Crete, and the colder temperatures and increased snows there in winter. At his current level of knowledge, he knew only that there was some connection, but that specifics had not yet been identified. (Cf. Bonaventura 1593, 130.) Note the last, brief sentence of § 14 (περὶ μὲν τούτων σκεπτέον), and recall my earlier discussion of the tentative nature of the study of winds (pp. 86–87).

I think it necessary to accept two related emendations suggested by Turnebus: δ' εἴ for δεῖ, and ἔχει for ἔχειν (I assume ἔχει was altered, as the mistaken δεῖ required an infinitive). Furlanus inserts an οὐκ between εἴη and ἄν, unnecessarily.

ἄτοπον δ' ἂν δόξειεν εἰ μὴ καὶ τοῖς πρὸς μεσημβρίαν ἐστὶ τοιαύτη τις ἐπικουρία κατὰ τὸ ἦθος· πολλῶ γὰρ ἐκπυρώτερος ὁ τόπος ἐκεῖνος.

I offer a radical interpretation of this line, which requires: (1) accepting the manuscript reading (ἦθος) over Turnebus' widely accepted emendation (ἔτος); and, (2) interpreting ἐπικουρία somewhat unusually.

First, κατὰ τὸ ἦθος means “according to custom” or “customary,” which might seem out of place in a discussion of winds; but it is not, given the recent mention (earlier in § 14) of ritual sacrifices practiced with a view to maintaining good weather. The alternative is to accept either of Turnebus' suggestions, ἔτος or θέρος: κατὰ τὸ ἔτος meaning “annually,” κατὰ τὸ θέρος “in the summer.” The former has been accepted by every scholar since Turnebus proposed it: by Bonaventura (1593, 131), and by every editor and translator. Second, I take ἐπικουρία to mean not simply ‘aid’ (its usual meaning), but ‘request for aid’. According to LSJ (s.v.), this is not impossible, for it gives the following three senses of the word: I. *aid, succour*, II. *auxiliary force*, III. *prayer for aid, entreaty*. This third is the rarest, with LSJ offering only one example: SIG 1015.24 (Halic., iii B.C.).<sup>240</sup> But I think it fits the present context perfectly.

So, I think I am justified in my translation: “And it would seem strange if there is not also among those in the south some such customary request for aid; for that location is much hotter.” Now compare the relevant sections of other translations: *annuum subsidium* (Turnebus); “relief ... year by year” (Wood); “annual relief” (Coutant). Further, putting aside the fact that the standard

<sup>240</sup> This third sense, however, is missing in *BDAG*.

reading requires rejecting the *paradosis*, it creates some serious interpretive problems as well. For it makes Theophrastus claim that it would be strange if southern lands did not receive annual relief (from the Etesians), because it is so hot. But that in turn requires attributing to Theophrastus a teleological view of meteorological phenomena that we know he rejected (see above, pp. 79–81).<sup>241</sup>

δῆλον οὖν τοῦτο, πλὴν εἰς (*lac. 5 litt.*) [μῖση] τὸν καρπὸν, οἱ δὲ προτεροῦσιν, οἱ δ' ἀπαθείς εἰσὶ.

The text of this part of §14 is hopelessly corrupt, and so I include the lacuna in my text but do not attempt to fill it or otherwise correct the text (aside from bracketing μῖση).<sup>242</sup> But I suspect Theophrastus is saying that it is clear that the Etesians (whether numerous, moderate, or non-existent) affect the growth of crops on Crete (and similar places)—except for those crops that come in after<sup>243</sup> or before the Etesians blow, or for those that are entirely unaffected by the Etesians.

On the Etesians and plant growth, see *HP* 2.7.5 & 4.2.5, and especially *CP* 3.3.3. Bonaventura (1593, 131) refers, in connection with this passage, to *HP* 8.3, which discusses the many differences between grains (wheat and barley), legumes (e.g. lentils), and the summer crops (e.g. millet and sesame). One difference is that some of these flower all at once, while others do so in succession (8.3.3), though Theophrastus does not clarify which do which. A more relevant difference is that the seeds of grains are the strongest at withstanding wintery or stormy weather and any other climate (8.3.5).<sup>244</sup>

241 Bonaventura, who *does* attribute such a mistaken view to Theophrastus, comments on this line: *Argumentum est sumptum a naturae providentia, quae nunquam deest in necessarijs* (1593, 131).

242 Here are some attempts to improve the text: πλὴν εἰ μὴ ὥσπερ οἱ μὲν ὑστεροῦσι τῶν καρπῶν. οἱ δὲ προτεροῦσιν (Turnebus); [πλὴν εἰς] ὅτι τῶν (μὲν) καρπῶν οἱ δὲ προτεροῦσιν (Bonaventura); πλὴν εἰς (πέψιν) τῶν καρπῶν. οἱ μὲν γὰρ προτεροῦσιν (Furlanus); πλὴν εἰ (παρ' ἐκείνους) τῶν καρπῶν. οἱ μὲν προτεροῦσιν (Gigon); πλὴν ὅτι οἱ μὲν ὑστερίζουσι τῶν καρπῶν, οἱ δὲ προτεροῦσιν (Coutant).

243 The lacuna probably contained something like Turnebus' οἱ μὲν ὑστεροῦσι or Coutant's οἱ μὲν ὑστερίζουσι (see the previous note), countering the οἱ δὲ προτεροῦσιν of the manuscripts. See LSJ (s.v. προτερέω): "of plants, to be early, opp. ὑστερέω, Thphr. *CP* 3.24.2."

244 ἰσχυρότερα δὲ πρὸς μὲν τὸν χειμῶνα καὶ ὅλως τὰ τοῦ ἀέρος τὰ σιτηρά ....

περὶ μὲν τούτων σκεπτέον.

Such exceptions (or the effect of the Etesians on plants generally)—which is how I understand the τούτων here—must be investigated later or elsewhere (I assume in the botanical works).<sup>245</sup>

Whereas Schneider made this the end of a chapter, Bonaventura (1593, 131) makes it the beginning of a new one (cf. Turnebus, who did the same and also inserted an οὖν after περὶ μὲν.) For an editor organizing the text, this is optional—though in this case I follow what has become tradition, i.e. Schneider.

I take the μὲν—δέ construction linking this line and the next to convey the following: ‘Such issues must be discussed later or elsewhere, but here and now I turn to a different topic.’

### *On Winds* 15

§§ 15–18 deal with the mutual influence of the sun (and to a much lesser extent the moon) and exhalation (ἡ ἀναθυμίασις) on winds generally, but especially locally.<sup>246</sup> § 15 is the first chapter to refer explicitly to exhalation, a concept of central importance in Aristotle’s *Meteorology* but seemingly less so in *On Winds*.

εἰ δὲ πάντων τῶν πνευμάτων ἡ αὐτὴ καὶ ὑπὸ τῶν αὐτῶν γένεσις, τῷ τι παραλαβεῖν, ὁ ἥλιος ἂν ὁ ποιῶν εἴη. τάχα δ’ οὐκ ἀληθεὲς καθόλου εἰπεῖν, ἀλλ’ ὥς ἡ ἀναθυμίασις, οὗτος δ’ ὥς συνεργῶν.

I take this opening of § 15 to be stating that *if* there were one generator or producer of all the winds, which was their cause by taking on material (especially air and water, I presume), it would be the sun. But in fact, to speak more accurately, attending to all the different winds, one should say that the (primary?) producer or generator is exhalation (ἡ ἀναθυμίασις), with the sun being a ‘co-worker’—i.e. a second or secondary cause of the winds. Or to put it another way: The sun is *not* the sole cause, receiving some material (τῷ τι παραλαβεῖν);

<sup>245</sup> Cf. Coutant & Eichenlaub (1975, 72): “Steinmetz [1964, 34] believes that the lacuna in the mss. once contained a statement of long-term weather changes .... The last sentence in the section [περὶ μὲν τούτων σκεπτέον] seems to argue against this.”

<sup>246</sup> Steinmetz (1964, 34) too considers §§ 15–18 a unit, though he describes their topic a little differently as *Der Einfluß des täglichen Umlaufs der Sonne auf die lokalen Windverhältnisse*.

rather, the material it receives (the exhalation) is either the primary or an equal cause. But is Theophrastus saying more than that the sun is the efficient cause and the exhalation the material? I'm not so sure. (Note Coutant & Eichenlaub 1975, 73: "The exhalation seems to be both material cause and cooperating efficient cause. But the sun is the primary cause.")

There is no mention of the sun and its role in Theophrastus' *Metars.* 13 (as noted by Daiber 1992, 278). Perhaps this is explained by its nature as an epitome, and the sun's role was assumed (by the epitomizer) to be implied in the references to vapor (as the sun is its cause). Such an assumption is found elsewhere in his *Metarsiology*, where we might expect a reference to the sun (or its absence): e.g. in the formation of clouds from ascending vapor (7.2–5) or in the formation of snow (9.2–8).

Given its importance in Aristotle's *Meteorology*, it is of course surprising that ἡ ἀναθυμίασις occurs only twice in *On Winds* (here and in § 23). I assume this has the same referent as the Arabic word in Theophrastus' *Metarsiology* translated 'vapor' by Daiber. As mentioned in the Introduction, however unclear the differences between Aristotle's and Theophrastus' accounts of wind are, I think we can say with some confidence that whereas for Aristotle dry exhalation (from the earth) is a cause of wind, for Theophrastus *moist* exhalation (often from bodies of water) is a cause of wind.<sup>247</sup>

Re. εἰ: The first word of this passage in ms. A is almost certainly καὶ, though this has not been reported by previous editors. The αἰ is clear, and so is the existence of some other preceding letter, which is hard to read but likely a kappa. (There is something faint above the alpha that *might* be an acute accent, which makes no sense, though it is more likely a stray mark.) Ms. D reads αἰ. The Aldine prints εἰ, which is paleographically close to αἰ and moreover required for sense.

Re. τῶν πνευμάτων: On the possible difference (or lack thereof) between ἄνεμος and πνεῦμα, see above pp. 69–70. I think it possible that Theophrastus chose to use πνεῦμα here because he is referring (in §§ 15–18) not to some specific kinds of wind, but (so to speak) to any given flow of air (including local breezes, for example) that might be blowing on any given day (or during any given part of the day).

247 Coutant & Eichenlaub (1975, 73): "Here [i.e. in § 15] Theophrastus is talking about the moist exhalation, not the dry, as having effect." This is not to say Theophrastus rejects completely the dry exhalation (he did not—see e.g. *Lap.* 50); but it is unclear to what extent (if any) it played a role in his theory of wind. Cf. Strohm (1937, 256): *Indem Theophrast die Rolle der ξηρὰ ἀναθυμίασις zurückdrängt, hat er sich des systematischen Grundgedankens begeben, der der die Überlegenheit der Μετεωρολογικά seines Lehrers gegenüber dessen Vorgängern begründen sollte.* See also Gottschalk (1967, 24).

Re. ἄν ὁ: Like every editor since Schneider, I accept Turnebus' emendation over the paradosis. Ms. D and every later manuscript have ἄνω. Ms. A, however, is no longer illegible: all one can make out is the ἰων of the ποιῶν which follows—oddly without the circumflex or any other accent.

Re. οὗτος δ' ὡς συνεργῶν: (1) I think it necessary to accept Turnebus' emendation οὗτος over οὕτως (ms. A) or οὕτω (ms. V<sup>a</sup>). (2) An editor might consider emending ὡς to ὁ prior to συνεργῶν (ms. z has ὅς), in which case the sun is *the* co-worker, not *as it were* a co-worker.

ἄλλ' ὁ ἥλιος δοκεῖ καὶ κινεῖν ἀνατέλλων καὶ καταπαύειν τὰ πνεύματα· διὸ καὶ ἐπαυ-  
ξάνεται καὶ πίπτει πολλάκις.

The remainder of § 15 is devoted to the influence of the sun on (certain) winds, and particularly to a seemingly paradoxical feature of that influence: that the rising of the sun (at which point it begins to exert its influence) can either produce a (more vigorous) motion in winds *or* bring to a halt certain winds.<sup>248</sup> As an indication that what is described here is (seemingly) paradoxical or problematic, note that this is the topic of *Pr.* 26.34 (which is clearly connected to § 15).

Why, when the sun rises, do the winds both grow and fall? Is it because wind is movement either of the air or of the moisture carried up? Now when this movement is little, it is quickly expended by the sun, so that wind does not arise; but when it is greater, it is set in motion more when the sun rises; for the sun is a source of the movements.<sup>249</sup>

Introducing this apparent paradox here serves the purpose of demonstrating that of the two joint-causes—exhalation and the sun—the latter is constant or regular, whereas the former is quite variable. And this tends to elevate the status of the sun, whereas one might consider its status as a συνεργῶν a demotion. Now one might claim that the causal influence of the sun too is irregular, depending for instance on cloud cover. But perhaps one should assume that cloud cover or

<sup>248</sup> In the present passage, Theophrastus refers to the rising sun simply setting the wind in motion (or stopping it). At the end of § 15, however, he contrasts the sun stopping the wind with its making the motion of the wind more vigorous (σφοδροτέραν ἐποίησε τὴν κίνησιν).

<sup>249</sup> Διὰ τί αἰρομένου τοῦ ἡλίου καὶ αὐξάνεται καὶ πίπτει τὰ πνεύματα; ἢ ὅτι τὸ πνεῦμά ἐστιν ἦτοι τοῦ ἀέρος ἢ τοῦ ἀναχθέντος ὑγροῦ κίνησις; αὕτη δὲ ὅταν μὲν ἐλάττων ᾖ, ταχὺ καταναλίσκεται ὑπὸ τοῦ ἡλίου, ὥστε οὐ γίνεται πνεῦμα· ὅταν δὲ πλείων, κινεῖται μᾶλλον τοῦ ἡλίου ἀνατελλαντος· ὁ γὰρ ἥλιος ἀρχὴ τῶν κινήσεων ἐστίν.

any other meteorological influences on the effect of the sun, would actually fall under or involve variations in exhalations. (There *is* a kind of regular variability in the sun's causal influence on wind, and that is discussed in § 16.)

οὐ καθόλου δὲ τοῦτ' ἀληθές, ἀλλ' ἐφ' ὧν γε συμβαίνει ταύτην ὑποληπτέον τὴν αἰτίαν.

I find this line suspect, and considered obelizing it. First, after claiming that the rising of the sun can have two opposite effects on wind, it is strange to then point out that this is not universally true. Why would Theophrastus claim that the rising of the sun does not always either stop wind or set it in motion? (This is not as problematic if the contrast is between causing a wind to move more vigorously and causing it to cease.) I also find it somewhat strange that in a discussion of the mutual influence of two joint-causes Theophrastus would imply that there is one cause (ταύτην ... τὴν αἰτίαν) of the phenomenon he is describing. Further, especially in light of these problems, I find the appearance of οὐ καθόλου δὲ τοῦτ' ἀληθές so soon after οὐκ ἀληθές καθόλου suspicious, and wonder whether the former is not a mangled remnant of a scribal error (involving dittography) or a marginal comment absorbed into the text. Finally, the passage that follows this line is an explanation of the phenomenon described in the passage preceding it (and not an explanation of why the phenomenon is not universal): the text flows smoothly without the dubious line. (Accepting Turnebus' emendation of the manuscripts' τε το γε improves the sense a little: "but *at least* in the cases ..." etc.)

ὅταν μὲν γὰρ ἔλαττον ᾖ τὸ ἀνηγμένον ὑγρόν, τούτου κατακρατῶν ἐξανήλωσε καὶ κατέπαυσεν ὁ ἥλιος· ὅταν δὲ πλέον συμπάρωρμησε καὶ σφοδροτέραν ἐποίησε τὴν κίνησιν.

Theophrastus now briefly explains why the rising sun—'working' with exhalations—sets the wind in motion with more vigor, or stops it.

The power of the sun, on rising, is constant. What is variable is the amount of moist vapor or exhalation that arises (though that itself is in part a result of the sun). If the moist vapor is less (than usual), the sun masters and exhausts it and the wind ceases, as the moist vapor is its material source. But if it is greater (than usual), the sun does not exhaust it but transforms it into wind; and as there is more of it than usual, the flow of air is even more vigorous (σφοδροτέραν).

No particular winds are mentioned in the discussion of this phenomenon in §§ 15–16 (but cf. §§ 11–12, on the Etesians). §§ 38–48 seem to rule out Zephyrus, however. Perhaps Theophrastus is referring to any number of unspecific, unnamed local winds and breezes, as I suggest above.

*On Winds 16*

In §15, Theophrastus claims that both the sun and exhalations are causes of the winds, and he focuses on what happens to wind given certain variations in the exhalations (i.e. if they are greater or less, in some sense). In §16, the focus is on the sun as a cause of wind, and *its* variability—in the sense of its regular changes throughout the day, from sunrise to sunset.

ἐνίοτε δὲ καὶ ἅμα τῇ δύσει κατέπαυσεν, ὥσπερ ἀφελόμενος τὴν ἀπ' αὐτοῦ κίνησιν ἦν ἔδωκεν. ταύτην δὲ δῆλον ὡς ἔχειν τινὰ δεῖ συμμετρίαν, ὥστε μήτ' ἐξαναλίσκεσθαι μήτ' ἐξ αὐτῆς δύνασθαι κινεῖσθαι πλείω χρόνον.

Once again, Theophrastus reminds us that we cannot speak about the winds with precision: here, he describes what is *sometimes* (ἐνίοτε) the case. Given what was described in §15, it of course naturally follows that there will be changes to the winds when the sun sets: the winds sometimes stop blowing, as the sun removes its influence (and sometimes they do not, as he explains in the second half of §16). In §18, Theophrastus will discuss other 'variations' or differences: i.e. the sun at midday and at midnight.

Theophrastus does not explicitly mention sunrise here (as we might have expected him to do, in contrast to the setting of the sun), though he does in §17; and I think he does at least implicitly contrast the sun removing its influence and exerting it, when he speaks of the need for or the requirement of some proportion (ἔχειν τινὰ δεῖ συμμετρίαν). (Nevertheless, I suspect that something has dropped out of the text, or that it is otherwise a highly compressed set of notes. See below, p. 184, on the second part of §17.) I think we can understand what he means here by returning to §15 (and the claim that "whenever the raised-up moisture is less, the sun overpowers and exhausts it and so brings the wind to a halt; whereas whenever the raised-up moisture is greater, the sun adds an impetus and produces a more violent motion"). The proportion describes the relationship between the sun and the exhalation:<sup>250</sup> the power of the sun and the amount of exhalation are in the 'necessary' proportion when the sun neither exhausts the exhalation nor imparts to it a more violent motion. Or to put it another way: however the wind blows, or even whether it stops blowing, will depend on a certain proportion or relationship between the influence of the sun and the amount of moist air raised up in the exhalation.

250 Cf. Coutant & Eichenlaub (1975, 73): "The proportion is that of the action of the sun and the amount of moisture raised ...."

Re. ἐξ αὐτῆς: Wood translates this “by it” (with ‘it’ referring to an implied ‘the force of the sun’), whereas Coutant does not translate this at all (simply printing “kept in motion,” without the expected ‘out of it’ or even ‘by it’).<sup>251</sup> But I take the feminine αὐτῆς to refer back to ἡ ἀναθυμίασις in § 15, and translate the phrase “kept in motion *out of it* (i.e. *the exhalation*)” etc.

ἐνια δὲ καὶ δύνοντος τοῦ ἡλίου [ὅ]πνεῖν οὐδὲν κωλύει μάλλον, οἷον ὅσα κατέχεται τῇ θερμότητι καὶ ὥσπερ ἀναξηραίνεται καὶ ἐγκαίεται. διὰ τοῦτο γὰρ καὶ ἐν μεσημβρίᾳ μάλιστα ἀπνεύματοι, παρεγκλίναντος δὲ τοῦ ἡλίου πνευματωδέστεραι.

As always, there are exceptions. Some winds do not stop blowing when the sun goes down, but on the contrary *begin* to blow as the sun begins to go down. This occurs wherever the relationship between the sun and the exhalation, in the middle of the day, is such that the heat from the sun completely masters (dries up and burns) the moisture from the exhalation, at which point that wind is for the most part or especially still, i.e. lacking in air-flow (μάλιστα ἀπνεύματοι<sup>252</sup>). When the sun goes down, it no longer (completely) masters the exhalation—or as the sun begins to go down it begins to lose its mastery—and so a more ‘proper’ proportion is established (between the moisture in the exhalation and the remaining heat from the sun), and at that point or during that period there comes to be a more substantial or greater air-flow (πνευματωδέστεραι).

Re. ἐγκαίεται: Schneider’s suggested emendation (ἐκκαίεται, 1818, 2: 590) may well be right, as it is a more common word, especially early on. But as ἐκκαίεται and ἐγκαίεται mean roughly the same in this context, and as there is at least one earlier occurrence of the latter (Hp. *De mul. aff.* 133.47: ἐγκαίειν), I have retained the reading of ms. A.

Wood renders both δύνοντος τοῦ ἡλίου and παρεγκλίναντος τοῦ ἡλίου “as the sun goes down”; Coutant’s translations are slightly better: “the sun ... when it sets” and “when the sun is sinking.” I similarly translate the first “when the sun is setting”; but I have chosen the vaguer “when the sun inclines” for the second. Note LSJ (s.v. παρεγκλίνω): “*cause to incline sideways ... of the sun, pass the meridian*, Thphr. *Vent.* 16.” I suspect it refers to sometime (much) after noon but before the sun actually sets (though how much earlier is unclear).

Re. πνευματωδέστεραι: There is no reason to emend the reading of ms. A. Turnebus prefers the singular, πνευματωδέστερα (which is unnecessary), and Furlanus’ suggestion (πνεύματα παύονται) makes things worse. πνευματωδέστεραι

251 Wimmer’s translation too seems to ignore these words.

252 The reading of the Aldine (πνεύματα) makes no sense.



could (and perhaps should) be translated “windier,” but in the end I decided to translate it “have a greater flow of air”.

### *On Winds 17*

§ 17 can be divided into three parts: (1) an excursion into the moon as a cause of or influence on winds in a manner that parallels the sun’s influence; (2) two seemingly out of place lines summarizing what has been said earlier about the sun’s influence; and, (3) a comment about the need to consider and investigate the possibility of coincidence. As is so often the case, the text is in terrible shape.

ποιεῖ δὲ καὶ ἡ σελήνη ταῦτα πλὴν οὐχ’ ὁμοίως, οἶον γὰρ ἀσθενὴς ἥλιός ἐστιν. διὸ καὶ νύκτωρ δεινότεραι (*lac. 12 litt.*) καὶ αἱ σύνοδοι τῶν μηνῶν χειμερινώτεραι.

All we can say with certainty about the meaning of the opening two lines of § 17 is that the moon seems to exert an influence on wind, though a weaker one than the sun’s (though perhaps not so much weaker than a setting or rising sun), and that as a result, at the time of a new moon (“the conjunctions of the months”)—and perhaps at the occurrence of a lunar eclipse as well—the weather is stormier.

This section should be compared to [Thphr.] *Sign.* 5, as the two texts are clearly related:

But the best (signs) are from the sun and the moon; for the moon is as it were the nighttime sun; and this is why the conjunctions of the months are stormy, because the light of the moon is lost from the four waning (days) till the four beginning (days). Therefore loss of the moon occurs in the same way as loss of the sun.<sup>253</sup>

Re. ταῦτα: ταῦτά (printed by Schneider, “the same [results?]”) is arguably slightly better than ταῦτα, “these [results?],” though I print the manuscript reading (from ms. D et al.; ms. A is illegible).

<sup>253</sup> μάλιστα δὲ κυριώτατα τὰ ἀπὸ τοῦ ἡλίου καὶ τῆς σελήνης· ἡ γὰρ σελήνη νυκτὸς οἶον ἥλιός ἐστι· διὸ καὶ αἱ σύνοδοι τῶν μηνῶν χειμεριοὶ εἰσιν ὅτι ἀπολείπει τὸ φῶς τῆς σελήνης ἀπὸ τετράδος φθίνοντος μέχρι τετράδος ἱσταμένου. ὥσπερ οὖν ἡλίου ἀπόλειψις γίνεται κατὰ τὸν ὅμοιον τρόπον καὶ τῆς σελήνης ἔκλειψις. (Cf. *Sign.* 8.)

Although *πλὴν οὐχ' ὁμοίως* normally means something like “except not similarly,” I render it more specifically “except not *with the same force*.” See LSJ (s.v. ὁμοιος) I 3: *equal in force* (*Il.* 23.632, *Hdt.* 9.96).

Re. *δεινότεραι* (*lac. 12 litt.*): I leave the text as found in ms. A, and translate accordingly; but Turnebus' αἱ ἐκλείψεις may well be what's missing: “And this is why at night *lunar eclipses* are more terrible ....” I do not find Gigon's suggestion (*δεινότερα* <τὰ πνεύματα>) as effective (cf. Coutant's αἱ πνοαί). Bonaventura's suggestion (1593, 140) works conceptually, but is too intrusive: <εὐ>δεινότεραι <ἐν ταῖς πανσελήνοις>, “they are milder <during full moons>.”<sup>254</sup>

συμβαίνει δ' οὖν ὅτε μὲν ἀνατέλλοντος τοῦ ἡλίου τὰ πνεύματα ἐπαίρεσθαι, ὅτε δὲ λήγειν. καὶ ἐπὶ τῆς δύσεως ὁμοίως· ὅτε μὲν γὰρ κατέπαυσεν, ὅτε δ' ὥσπερ ἀφήκεν.

I cannot make sense of the appearance of these two lines here, as they merely (in effect) repeat what was said before the excursion into the influence of the moon, except that this time there is an explicit mention of the rising of the sun as well as its setting: at both of these times the sun could either cause the winds to stop or to start. I expect that a line or lines was transposed or otherwise misplaced (from before the comment on the moon) and then perhaps expanded upon. (See above p. 181, on the possibility of something having dropped out of §16.)

εἰ δέ ποτε καὶ κατὰ σύμπτωμα γίνοιτο ταῦτα, καθάπερ καὶ τὰ ἐπὶ τῶν ἄστρον ἀνατολαῖς καὶ δύσεσιν, ἐπισκεπτέον.

Not only does the inquiry into the causes of the various winds lack the precision of other natural sciences, one must also wonder whether some of the supposed causal connections that have been identified are actually merely coincidences. Theophrastus may have in mind the supposed influence of the moon (at its various phases), but perhaps this fact about anemology also explains at least some of the seemingly contradictory findings concerning the rising and setting of the sun: that each can cause winds both to start (or increase in vigor) and to abate. Sometimes, the two might simply be coincidental, and one who investigates the winds must be aware of this possibility.

<sup>254</sup> It is worth mentioning, however, that forms of *εὐδεινός* are most common in Aristotle and especially Theophrastus; the comparative is quite rare, appearing only twice in the classical period (never earlier), though both of these are in Aristotle's *Meteorology* (*εὐδεινότεροις*, 1.10.347a23 & 1.12.348a3).

Theophrastus does not mean to suggest that every correspondence between the winds and the stars (καθάπερ καὶ τὰ ἐπὶ τῶν ἄστρον κτλ.) is a coincidence (see §§ 36 & 48), only that some of them surely are and therefore the possibility ought to be kept in mind when investigating such correspondences. On the relationship between the stars and other meteorological phenomena (but not winds), see [Thphr.] *Sign.* 1–2, 6–7, 23, 46.

Re. κατὰ σύμπτωμα (which I translate ‘according to coincidence’): From συμπίπτω, ‘fall together’. LSJ (s.v. σύμπτωμα): “*anything that happens, a chance occurrence, ...*; κατὰ σύμπτωμα Thphr. *Vent.* 17, cf. 31.” Though the term would later (e.g. in Epicurus and Galen) refer to a property or attribute (see LSJ s.v. 11), it clearly does not have that meaning in Theophrastus. Wood translates κατὰ σύμπτωμα “regular occurrence,” and explains in a note (1894, 30 n. 24) that although the expression can mean “by chance” it cannot mean that here. Coutant translates these words “happen in conjunction,” and he and Eichenlaub note in their commentary (1975, 73–74) that although Wood’s “regular occurrence” is not a meaning found in LSJ (nor is it found in *BDAG*), “the usual meaning ‘by chance’ could not conform to an attempt to ascertain cause-and-effect relationships” (hence their “happen in conjunction”). But it is precisely the encounter with coincidence in the quest for causal explanations that Theophrastus is referring to. The earlier translators had it right: see e.g. Turnebus’ *fortuito* (1600, 2: 43).

A comment is necessary on the ending of § 17 and the beginning of § 18. Ms. A (which of course has no such division) reads ... ἐπισκεπτέον· ταυτο<sup>255</sup> δὲ κτλ. Naturally, the text was read to be ending one phrase or sentence at ἐπισκεπτέον, and beginning another thereafter. Schneider, in his edition of the text, separates §§ 17 and 18 at just this point. In one set of comments on the text, however, he maintained that ταυτὸ δὲ should be emended to τοῦτο δὴ and read with ἐπισκεπτέον to end § 17 (1818, 4: 689). Wimmer followed him to some extent, ending § 17 ἐπισκεπτέον, τοῦτ’ ἂν εἴη. Coutant brackets ταυτὸ δὲ, excluding it from both chapters. I retain the manuscript reading and sentence-division (ending § 17 at ἐπισκεπτέον), though with little confidence that that is correct (and I recognize that something is likely wrong with the text). Gigon too restored the manuscript reading.

255 Accent and breathing mark are not legible in either of my copies of ms. A, but this must be ταυτὸ.

### *On Winds* 18

Although the text of §18 is in terrible shape, on the whole both its subject matter and basic meaning are clear. And they are confirmed by *Pr.* 25.4, which is obviously related to our text:

Why does fair weather occur most often at midnight and midday? Is it because calm is a stillness of air, and air is at a standstill most when it achieves mastery or is mastered, but when struggling it is in motion? Now it achieves mastery most at midnight, and is mastered most at midday; for at the one time the sun is farthest away, while at the other it is nearest. Further, the air-flows begin either about dawn or about dusk, and the morning breeze abates when it is mastered, and the wind that begins at dusk abates when it stops achieving mastery. So as a result, the former (flows of air) stop at midday, the latter at midnight.<sup>256</sup>

The subject of both §18 and *Pr.* 25.4 is fair weather (εὐδία) or calm (νηνεμία), and the role of the sun in producing such a state.<sup>257</sup> Basically, when (the heat of) the sun masters the air completely (which it does at midday) and when the sun is mastered by the air completely (which occurs at midnight, and presumably for some time after) there is calm—when the air is still. The winds are active—there is air-flow—during the in-between states, when the sun is exerting some (but not complete) mastery over the air or vice versa. (See the chart below, on p. 189.)

ταὐτὸ δὲ καὶ ἀπὸ τῆς αὐτῆς πῶς αἰτίας· καὶ διὰ μέσων νυκτῶν καὶ μεσημβρίας ἄπνοιαι γίνονται καὶ μάλιστα.

Like most editors, I think the opening of §18 (particularly the first clause) is corrupt: On ταὐτὸ δὲ, see above p. 185. I follow Schneider in printing ἀπὸ instead of ms. A's ἐπὶ, though this latter may be right if Furlanus (1605, 85) is correct in recommending that αὐτῆς be emended to νηνεμίας (yielding ἐπὶ τῆς νηνεμίας,

256 Διὰ τί μέσων νυκτῶν καὶ μεσημβρίας μάλιστα εὐδία γίνεται; ἢ διότι ἡ νηνεμία ἐστὶν ἀέρος στάσις, ἔστηκε δὲ μάλιστα, ὅταν κρατῇ ἢ κρατῆται, μαχόμενος δὲ κινεῖται; κρατεῖ μὲν οὖν μάλιστα μέσων νυκτῶν, κρατεῖται δὲ μεσημβρίας· τότε μὲν γὰρ ὁ ἥλιος πορρωτάτω, τότε δὲ ἐγγυτάτω γίνεται. ἔτι ἄρχεται τὰ πνεύματα ἢ περὶ ἔω ἢ περὶ δυσμάς, λήγει δὲ τὸ μὲν ἔωθεν, ὅταν κρατηθῇ, τὸ δὲ ἀπὸ δυσμῶν, ὅταν παύσῃται κρατῶν. συμβαίνει οὖν τὰ μὲν μεσημβρίας παύεσθαι, τὰ δὲ μέσων νυκτῶν.

257 §18 and *Pr.* 25.4 should be contrasted with Arist. *Mete.* 2.5 and *Pr.* 15.5.91a35–b1.

“in the case of calm”). But that emendation would require further revision of the line, and is pretty implausible paleographically. Wimmer omits πως, which I assume was a conscious decision and not an oversight (his *apparatus criticus* is not clear).

I translate the first clause: “And the same thing is also (true) in some sense (πως) from the same cause.” I take “the same thing” to refer to the winds becoming still, which is true both at midnight and midday.<sup>258</sup> The same cause refers to the sun exerting an influence on wind, by both its presence and its absence—here in the case of calm weather.

συμβαίνει γὰρ ποτὲ μὲν κρατεῖν ποτὲ δὲ κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον ὑπὸ τῶν (lac. 9 litt.) μέσων μὲν νυκτῶν κρατεῖν, πορρωτάτῳ γὰρ ὁ ἥλιος τότε, μεσημβρίας δὲ [κρατεῖν ποτὲ δὲ] κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον. κρατῶν δὲ καὶ κρατούμενος ἔστηκεν, ἡ δὲ στάσις νηνεμία.

The expression τὸν ἀέρα τὸν τοιοῦτον (“such air”) appears twice in this part of §18: *such air* achieves mastery over (the heat from) the sun, and at a different time *such air* is mastered by it. (Cf. the straightforward *air* [ἀέρος] of *Pr.* 25.4.) I consider this to be significant, and think Coutant & Eichenlaub (1975, 74) are likely correct to take this to refer to exhalations (though they specify “the moist exhalation”). Cf. Steinmetz (1964, 35–36).

Calm is that state in which the air is at a standstill,<sup>259</sup> whether because the air has mastered the heat from the sun, or because it has been mastered by it. Calm is achieved at midnight and at midday (see below).

Re. ὑπὸ τῶν (lac. 9 litt.): One might consider filling the lacuna with τοῦ ἡλίου φορῶν (which has the disadvantage however of being much longer than nine letters). The same is true of Coutant’s τοῦ ἡλίου ἀκτίνων—though what counts against it most is the fact that nowhere does Theophrastus or Aristotle (or the author of *Pr.* 25) refer to the *rays* of the sun as the active attribute, so to speak, which masters (or is mastered). Wimmer is more intrusive: he changed τῶν to τοῦ and filled the lacuna with ἡλίου· καὶ. In any case, the meaning of the text is clear: it must refer to the air being mastered by the sun.

Re. μεσημβρίας δὲ [κρατεῖν ποτὲ δὲ] κρατεῖσθαι τὸν ἀέρα τὸν τοιοῦτον: Ms. A is not completely legible here, and from what can be read there seems to be some slight variation between it and ms. D. Whichever text one takes as one’s starting point, editors agree that the line contains some repetitive material and so part

<sup>258</sup> Cf. Turnebus, who wrote ζήτημα above ταῦτο: “the same question/issue.”

<sup>259</sup> Not literally still or completely immobile. See note 333 below.

of it must be bracketed. (This is perhaps not surprising, given the frequency of κρατ- words in this passage.) The Aldine goes so far as to omit this entire line (as the same words in the same order appear earlier in the passage), and Wimmer omits nearly as much. (Gigon seems to do the same.) I preserve the same text as Coutant, though he brackets δὲ κρατεῖν ποτέ whereas I bracket κρατεῖν ποτέ δὲ. I prefer the latter, as I think these words, in this order, were likely inserted by mistake via dittography from the exact words in the previous line (perhaps prompted in part by the re-appearance of κρατεῖσθαι).

συμβαίνει δὲ καὶ τὰς καταπαύσεις γίνεσθαι τῶν πνευμάτων<sup>260</sup> κατὰ λόγον. ἄρχεται μὲν γὰρ ἢ περὶ ἕω ἢ περὶ δυσμάς· λήγει δὲ τὰ μὲν ἕωθεν ὅταν κρατηθῇ, κρατεῖται δὲ κατὰ μεσημβρίαν· τὰ δ' ἀπὸ δυσμῶν ὅταν παύσῃται κρατῶν, τοῦτο δὲ γίνεται μέσων νυκτῶν.

As far as I can tell, in the first sentence Theophrastus is saying that our everyday observations about the winds confirm what has been explained (according to reason) in the first half of §18, in terms of the sun mastering and being mastered by air. As to the actual source of these observations or claims, I offer this comment from Coutant & Eichenlaub (1975, 74):

The belief as to these daily variations probably arose from the diurnal characteristics of the bora, a cold, dry wind from the north or northwest, which blows sometimes in violent gusts down from the mountains on the eastern shore of the Adriatic, and which exhibited a principal minimus about midnight, and the characteristics of the etesians at Athens, which reached their maximum velocity before noon, and then decreased in velocity as a result of sea breezes. Cf. Böker [1958a] 2245 and 2260, in which the bora is also held responsible for the belief in midnight and midday stoppages or calms.

Three (possible) emendations (one major and two minor) in close proximity: (1) Ms. B omits μὲν, and a case could be made for bracketing it (or the one that follows) as unnecessary. (2) Re. ἢ περὶ ἕω ἢ: The mss. have ἢ θερμῇ, which gives the meaning “For the hot begins around dusk”—the opposite of the

260 The πνευμάτων is missing from the opening line in Coutant's text. I assume this was simply a mistake and not an emendation, as there is no indication of it in his apparatus (and moreover it makes no sense).

truth. So some such emendation as that suggested by Turnebus (ἧ περι ἕω ἧ) is necessary, taking τὰ πνεύματα as the implied subject: “For (the winds) begin around dawn or around dusk” etc. (3) Re. τὰ δ’: I accept Turnebus’ emendation of the manuscripts καὶ, as I think it likely that a τὰ δέ corresponding to δὲ τὰ in the previous clause dropped out and was replaced by καὶ.

Whatever specific winds those investigating this subject might have experienced, which were thought to confirm Theophrastus’ theories, I take § 18 as a whole to be describing a cycle of winds that is thought to be true generally, in virtually all locations—setting aside all the variations based on location or such factors as cloud cover, and the irregularities and unpredictable behavior of wind, and setting aside the behavior of such major winds as Boreas, Notos, Zephyrus, and the Etesians etc. (though these must of course be involved in some sense). That cycle can be described as follows (picking midnight as an arbitrary start and end point):<sup>261</sup>

Midnight	Calm (the air masters the sun) The wind begins to blow <sup>262</sup>
Sunrise	The wind is blowing The wind stops blowing <sup>263</sup>
Midday	Calm (the air is mastered by the sun) The wind begins to blow
Sunset	The wind is blowing The wind stops blowing
Midnight	Calm (the air masters the sun)

### *On Winds 19*

§§ 19–25 deal with the temperature of winds, or, to put it another way, with the attributes hot and cold.<sup>264</sup> This section begins (§§ 19–20) with an apparent

<sup>261</sup> I here rely heavily on Steinmetz (1964, 36).

<sup>262</sup> The content and position of this line are meant to convey that between midnight and sunrise, as the air gradually begins to lose mastery over the heat from the sun, the wind begins to blow.

<sup>263</sup> The content and position of this line are meant to convey that between sunrise and midday, as the heat from the sun gradually achieves mastery over the air, the wind begins to cease blowing.

<sup>264</sup> Steinmetz prefers two divisions: §§ 19–22 *Die Temperatur des Windes*, and §§ 23–25 *Einfluß lokaler Verhältnisse auf die Temperatur des Windes* (1964, 38 & 43).

puzzle involving the sun and the temperature of the winds: in brief, why the sun, which is hot, can cause winds that are cold.<sup>265</sup> I regard this discussion as a transition from the previous section, on the influence of the sun, to a more formal account of the temperature of winds.

Note too that throughout this section, Theophrastus is (at least indirectly) dealing with a broader or more fundamental issue of interest to Peripatetics: Why, when air comes into contact with something else, only some of the latter's attributes are transferred to the air? This is the focus of *Pr.* 25.10, which begins: "Why does air become cold by touching water, but not thoroughly moist, even if one blows hard into the water such that it makes waves?"<sup>266</sup>

Steinmetz (1964, 38) writes of §19: *Der Text ist im Mittelteil heillos verstümmelt*. The text is in bad shape; but I think we have seen, and will soon see again (e.g. §21), passages that are just as garbled.

εἰ δέ τινες θαυμάζουσιν ὡς ἄλογον ὅτι τὰ πνεύματα ψυχρά ἐστὶν ἀπὸ τῆς τοῦ ἡλίου κινήσεως καὶ ἀπλῶς τοῦ θερμοῦ γινόμενα, ψεῦδος τὸ φαινόμενον αὐτοῖς ἄλογον.

§19 begins by setting out the problem or puzzle, and indicating that it is merely an apparent puzzle, based on false assumptions.

*Pr.* 26.48 matches §§19–20 pretty closely. It is worth comparing its opening question with the first sentence of §19. Here is my translation of §19 (see text above): "If some people wonder how irrational it is that the winds are cold coming from the motion and basically from the heat of the sun, what appears irrational to them is deceptive." *Pr.* 26.48 asks: "Why are the winds cold, though they come from the movement of heat?" (Διὰ τί τὰ πνεύματα ψυχρά ἐστὶν, ὄντα ἀπὸ τῆς τοῦ θερμοῦ συγκινήσεως;)<sup>267</sup>

265 Strohm (1937, 252–253) writes: *An die Stelle der θερμῇ ἀναθυμίασις ist also schon bei der Formulierung der Aporie die Sonne und das Wärme überhaupt getreten.*

266 Διὰ τί ὁ ἀήρ ψυχρὸς μὲν γίνεται διὰ τὸ ἀπτεσθαι τοῦ ὕδατος, δίσυγρος δὲ οὐ, καὶν σφόδρα τις φασὶ εἰς τὸ ὕδωρ ὥστε κυμαίνειν; Cf. *Pr.* 25.3, which opens: "Why is the air not moist, when it comes into contact with water?" (Διὰ τί ὁ ἀήρ οὐχ ὕγρὸς, ἀπτόμενος τοῦ ὕδατος;) Of course, this in no way rules out heated water, which evaporates, becoming or producing moist air.

267 For a more detailed comparison of these two passages, and a response to Louis's claim (1993, 197) that such a comparison proves the priority of *Pr.* 26.48 to *Vent.* 19, see Mayhew (2015, 296–297).



οὔτε γὰρ ἀπλῶς ἀλλ' ὥς συναιτίῳ προσαπτέον, οὔτε πάντως ἢ ὑπὸ τοῦ θερμοῦ κίνησις θερμὴ καὶ πυρώδης, ἀλλ' ἐὰν τρόπον τινὰ γίνηται.

The problem is only an apparent one, because it assumes (a) that the sun is the sole cause of wind and its temperature, when in fact it is a joint-cause (συναιτίῳ),<sup>268</sup> and (b) that any motion produced by the sun must be hot. Both of these assumptions, Theophrastus claims, are false. That (a) the sun is a joint-cause (or co-worker, συνεργῶν) has already been stated in §15. The rest of §19 is devoted to explaining the falsehood of assumption (b). Similarly, the second sentence of *Pr.* 26.48 (that is, after its opening statement of the problem) is: “Or is the movement (caused) by the heat not in every case hot, but only if it comes to be in a certain way?”<sup>269</sup> (945b9–10).

Two minor textual issues: (1) Ms. B has ἀλλ' ὥς, i.e. the scribe or a second-hand (which is unclear) has emended ms. A's ἀλλως to ἀλλ' ὥς. That change ought to be accepted. (2) There is no reason to emend ms. A's γίνηται (γίνεται in ms. H). Bonaventura (1593, 144) thinks it ought to be ‘restored’ to γέννηται (which he mistakenly attributes to the parallel text in *Pr.* 26.48).<sup>270</sup>

ἀθρόως μὲν γὰρ ἐκπίπτουσα καὶ [ἢ] συνεχῆς αὐτῷ τῷ ἀφιέντι θερμῇ· κατὰ μικρὸν δὲ καὶ διὰ στενοῦ τινός, αὕτη μὲν θερμὴ, ὃ δ' ὑπὸ ταύτης κινούμενος ἀήρ, ὅποιος ἂν ποτε τυγχάνῃ προυπάρχων, τοιαύτην δὲ τὴν κίνησιν ἀποδίδωσι.

Recall the reference in §3 to wind travelling through a narrow (as opposed to an open) space: “the wind traveling through a narrow passage and so more intensely is colder.” Theophrastus discusses this further in §29 (focusing on the intensity and not the temperature of wind). However, I do not think the motion “through something narrow” (διὰ στενοῦ τινός) referred to in §19 (and later, in §20) is the same thing. In §§3 and 29, Theophrastus is discussing the motion of wind through certain terrain (especially through mountains). But I cannot see how that makes sense here. Rather, I think Theophrastus is describing (not too clearly) the initial motion of air caused by the sun. As we have seen, Theophrastus believes that as the sun moves across the sky, it pushes a great deal of air away from its path, to the north and to the south.

268 Cf. Thphr. *On Piety* fr. 584A.375–377 (*apud* Porph. *Abst.* 32.2): “the whole race of the gods in heaven” (τὸ σύμπαν γένος τῶν ἐν οὐρανῷ θεῶν) are “joint-causes with us of the crops” (συναιτίοι καρπῶν ἡμῖν εἰσίν) that we enjoy.

269 ἢ οὐ πάντως ἢ ὑπὸ τοῦ θερμοῦ κίνησις θερμὴ γίνεται, ἐὰν μὴ τρόπον τινὰ γίνηται;

270 The τοῦ is missing from ὑπὸ τοῦ θερμοῦ in Coutant's text. I assume this was simply a mistake and not an emendation, as there is no reference to it in his apparatus.

This is the air Theophrastus is talking about here. Now if the air pushed by the sun built up and then came out (even burst out, if Bonaventura is right—see below) all at once, such air would be (nearly) as hot as the sun and, by the time it reached humans (or any other sentient beings), it would no doubt be perceived as extremely hot. But what in fact happens, Theophrastus believes, is something quite different. The sun, as it travels, pushes the air out gradually, not in one big built-up burst. I take it that the air pushed by the sun travels (toward the north pole, for example) gradually and as if it were moving through a narrow passage—perhaps like a ray of light or like a wave moving on a river. The air that is in direct contact with the sun is hot, but that air pushes the air with which it is in contact which pushes the air with which it is in contact, etc., without the heat from the sun being transferred (or with gradually less heat over time). So, in the present example, once this moving air reaches the arctic and then heads south (as Boreas), its temperature is determined by that location, and by any other factors that determine the temperature of wind, but not by the heat of the sun or of the air that the sun pushes directly. In any case, this is the most sense I can make out of this passage.

I should note a couple of alternative interpretations of the narrow passages mentioned in §§19–20, and what moves through the passages. Wood (1894, 32 n. 26) takes the easy way out, in a manner of speaking: “the narrow space or opening which our author requires the wind to pass through in order to lower its temperature exists only, of course, in his imagination, which suggested to him that a wind starting from some particular point in space or on the earth’s surface necessarily moves at first within a confined area.” I do agree that Theophrastus seems to think (as I indicated in the previous paragraph) that wind beginning “from some particular point in space”—namely, where the sun meets the air which is that wind’s source—does move at first as if “within a confined area.” Steinmetz (1964, 40) maintains that it is clear that the narrow passage is the space between the particles of air, which the rays of the sun pass through.<sup>271</sup> But whatever one might say about Theophrastus’ intention here, clear it isn’t. But (again, as indicated above) I do agree that what Theophrastus is describing sounds like the movement of rays—though what he is describing is the movement of air. Coutant & Eichenlaub (1975, 75) correctly reject Steinmetz’s interpretation, but offer nothing specific in

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271 *Was ist aber dann unter Enge zu verstehen? Genauer formuliert, durch welche Enge setzen die Materie gedachten Sonnenstrahlen die Luft in Bewegung? Nun wird es klar: die Sonnenstrahlen müssen zwischen den Korpuskeln der Luft hindurchdringen.*

its place: “Steinmetz ... believes the narrows through which the first material passes are the spaces between the air particles, the material being the rays of the sun. But the comparison with the mouth suggests merely gross phenomena, not atomistic channels.”

Once again, it is worth comparing the passage from § 19 to its parallel in *Pr.* 26.48, in part because it provides an effective transition to § 20, and in part because it is connected to many of the proposed emendations in this section of § 19.

If it bursts forth all at once, the heat burns the very thing which emits it. But if it comes gradually through a narrow passage, it is itself hot, whereas the air that is set in motion by this, completes the movement and in such a condition as it was before, just as in the case of the mouth.<sup>272</sup>

945b10–14

There are four textual issues, all connected to *Pr.* 26.48.945b10–14: (1) Bonaventura (1593, 144) suggests emending the manuscripts' ἐκπίπτουσα to ἐμπίπτουσα, based on the ἐμπίπτῃ at *Pr.* 26.48.945b11, and he may well be right. Forster (1921, 166), however, suggests emending the text of *Pr.* 26.48 to ἐκπίπτῃ, based on § 19. According to LSJ (s.v.v. ἐκπίπτω and ἐμπίπτω), although their basic meanings are ‘fall out’ and ‘fall in’, the former can also mean ‘come out’, ‘go forth’, ‘escape’, whereas the latter can mean ‘break in’, ‘burst in’, or ‘attack’. In any case, I chose not to tamper with the text of ms. A here. (2) I follow Coutant in bracketing ἡ (which was omitted by Furlanus). Otherwise ἡ συνεχῆς αὐτῷ τῷ ἀφιέντι θερμῇ (“the heat continuous with the very thing discharging it”) would be the subject of the sentence, which at the very least would require alternative emendation (if it could be made sense of at all). Bonaventura (1593, 144) takes καίει αὐτὸ τὸ ἀφιέν θερμῇ at *Pr.* 26.48.945b11 to in fact begin καὶ εἰ, and on the basis of that emends καὶ ἡ συνεχῆς to καὶ εἰ συνεχῆς (cf. Forster 1921, 166). I do not think this is helpful or necessary. (3) I follow Heinsius in reading κινούμενος ἀήρ for the manuscripts' κινούμενος αὐτό. (His edition has no *apparatus criticus* or commentary, but I assume he based this change on *Pr.* 26.48.945b12–13). Turnebus suggested κινούμενος <ἀήρ> αὐτός, but I do not see what αὐτός adds and I think it much more likely that ἀήρ became αὐτός through scribal error or corruption

272 ἀλλ' ἐάν μὲν ἀθρόως ἐμπίπτῃ, καίει αὐτὸ τὸ ἀφιέν θερμῇ· ἐάν δὲ διὰ στενοῦ καὶ κατὰ μικρόν, αὐτὴ μὲν θερμῇ, ὁ δὲ ὑπὸ τούτου κινούμενος ἀήρ, οἷος ἂν ποτε τυγχάνῃ προυπάρχων, τοιαύτην καὶ τὴν κίνησιν ἀπετέλεσεν, ὥσπερ καὶ ἐπὶ τοῦ στόματος. (This last word is Forster's [1921, 166] emendation of the manuscripts' σώματος, based on the text of the opening line of *Vent.* 20.)

than that ἀήρ dropped out. (4) I follow Turnebus in emending ms. A's πρόσω ὑπάρχων to προυπάρχων (cf. *Pr.* 26.48.945b13).

### *On Winds* 20

Theophrastus now presents a mundane example—air released from the mouth in two different ways—which he uses as an analogy with wind generated by the sun, to support his solution to the puzzle set out in §19.<sup>273</sup>

παράδειγμα δ' ἱκανὸν τὸ ἐκ τῶν στομάτων ἀφιέμενον, ὃ φασιν εἶναι θερμὸν καὶ ψυχρὸν, οὐκ ἀληθῆ λέγοντες. ἀλλ' αἰ μὲν θερμὸν ἐστὶ, διαφέρει δὲ τῇ προέσει καὶ ἐκπτώσει.

This is a good example to use as an analogy with the sun generating wind, because there was a Peripatetic *problema* surrounding this same phenomenon, with a solution parallel to the one in §§19–20. *Pr.* 34.7<sup>274</sup> asks: “Why do people breathe both hot and cold from the mouth?” The author goes on to question the assumption behind the statement of the problem: “Or is the air that is moved in both cases hot, but the one who blows out does not move the air all at once but through a narrow mouth?”<sup>275</sup>

Similarly, people are puzzled that the sun (which is hot) could produce both hot and cold winds, as if—like the mouth in *Pr.* 34.7—the air coming directly from the sun (that is, the air directly pushed by it and so in contact with it) was sometimes hot and sometimes cold. But in fact—as in the follow up question in *Pr.* 34.7—the air directly pushed by the sun is always hot, so something else (the way air moves away from the sun) must explain why some winds are cold.

273 Aristotle uses the same example at *Mete.* 2.8.367a33–b4, in a discussion of winds circulating under the earth (in connection with earthquakes).

274 In my Loeb *Problems* (Mayhew 2011, 2: 383 n. 10), I claim that the ‘source’ of *Pr.* 34.7 is *Vent.* 20. But as I have recently confessed (Mayhew 2015, 308 n. 33), “in preparing the notes to my Loeb translation I did not exercise [the necessary] caution, but refer constantly (and confidently) to the source(s) of some *Problemata*-chapter. Shortly after completing that work, however, I came to regret not using ‘Cf.’ or ‘See’ in place of the more tendentious ‘Source.’” In the present case, I now think it just as likely (if not more so) that *Pr.* 34.7 is raising a question about a separate (however related) issue than that it was prompted by *Vent.* 20 to raise a question.

275 Διὰ τί ἐκ τοῦ στόματος καὶ θερμὸν καὶ ψυχρὸν πνέουσιν; ... ἢ ἀμφοτέρως ὁ ἀήρ κινούμενος θερμός, ὁ δὲ φουσῶν κινεῖ τὸν ἀέρα οὐκ ἀθρόως, ἀλλὰ διὰ στενοῦ τοῦ στόματος;

Cf. *Pr.* 26.48.945b15–16: “For people say we breathe both hot and cold from the same place, but this is not true, since what exits (the mouth) is always hot.”<sup>276</sup>

That the mouth is the analogue of the sun supports my view (discussed above, on §19) that the narrow passage referred to by Theophrastus here describes the air flowing from the sun, and not (as it does in §3 and §29) the wind moving over the earth, through certain narrow geological features.

Re. διαφέρει δὲ τῇ προέσει καὶ ἐκπτώσει, cf. *Pr.* 26.48.945b17–18: “its emission is what makes the difference” (διαφέρει δὲ ἡ ἔκπτωσις αὐτοῦ).

χαινόντων μὲν γὰρ καὶ ἀθρόον ἀφιέντων θερμόν, ἔαν δὲ διὰ στενοῦ σφοδρότερον φερόμενον ὥθῃ τὸν πλησίον ἀέρα κάκεινος τὸν ἐχόμενον ψυχρόν ὄντα, καὶ ἡ πνοὴ καὶ ἡ κίνησις γίνεται ψυχρά.

Theophrastus next explains the causality behind his example: how it is that air from the mouth—which is always hot—is sometimes perceived as hot, sometimes as cold (which we know from the previous passage he thinks depends on differences in how the air is emitted). If the air is released all at once, in a mass, through a mouth that is a large opening (“when yawning”) then that air—which is hot—is perceived directly, and thus its heat is perceived. If, however, we blow air hard (“more violently” than in yawning), through a mouth that is a narrow circular opening, then the hot air from the mouth pushes the air right outside the mouth, which pushes that air continuous with it, which reaches our hand (placed before our mouth), and what is perceived is not the hot air that exited the mouth originally, but the neighboring air that was pushed by the hot air, and that air has whatever temperature it does (which is very likely cooler than breath).

Note that whereas §20 and *Pr.* 26.48 use yawning (the latter has ἔαν μὲν γὰρ διὰ πολλοῦ ἀφίωμεν χανόντες, 945b18–19), *Pr.* 34.7 contrasts blowing hard with (for lack of a better word) ‘ha’-ing: “they blow cold, but they ‘ha’ hot” (φυσῶσι μὲν γὰρ ψυχρόν, ἀάζουσι δὲ θερμόν) (964a11). As I explain the unusual ἀάζουσι elsewhere (2011, 2: 385 n. 11): “The rare ἀάζω is likely an onomatopoeic word (and perhaps a Peripatetic neologism) referring to the gentle release of breath out of a fairly wide open mouth: ‘ha’. Aside from its two occurrences in this chapter (as well as one occurrence of its cognate ὁ ἀασμός), it appears elsewhere only at Arist. *Mete.* 367b2.”

276 φασὶ γὰρ ἐκ τοῦ αὐτοῦ θερμόν καὶ ψυχρόν ἡμᾶς πνεῖν, τοῦτο δὲ οὐκ ἀληθές, ἀλλὰ τὸ μὲν ἐξίον θερμόν ἀεί.

Schneider's minor emendation of the 'late' form present participle *χαινόντων* (we should expect *χασκόντων*) to the aorist *χανόντων* might be right but is ultimately unnecessary. Note that *ἀφιέντων* in the same clause is a present participle as well. I do think it necessary, however, to follow Bonaventura and emend ms. A's *ψυχρῶν ὄντων* to *ψυχρὸν ὄντα* (modifying *τὸν ἐχόμενον*).

τὸ αὐτὸ δὲ καὶ ἐπὶ τῶν πνευμάτων συμβαίνει· διὰ στενοῦ γὰρ οὔσης τῆς πρώτης κινήσεως, αὐτὸ μὲν τὸ πρῶτον οὐ ψυχρὸν· τὸ δ' ὑπὸ τούτου κινούμενον ὡς ἂν ἔχον τυγχάνῃ πρὸς θερμότητα καὶ ψυχρότητα.

Theophrastus now moves from the example to the analogue it is meant to explain or illuminate. There is little more to say here, as the causal mechanism in play has been explained before: the first movement going through the narrow passage is the air directly pushed by the sun, and this flow of air "at first is not cold." But the air pushed by this hot flow of air is "whatever it would happen to be with respect to heat and cold"; that is, the heat from the sun is not transferred beyond the "first movement." Theophrastus unfortunately does nothing further to clarify what he means by *διὰ στενοῦ*.

It is once again worth comparing our passage to a similar one in *Pr.* 26.48: "Perhaps the same thing happens in the case of the winds, and their first movement is through a narrow passage; then it carries this through, and other air flows in."<sup>277</sup> The first two thirds of this passage (up to *κίνησις*) is strikingly similar to ours, and I think they must be related. But the author of *Pr.* 26.48 is more tentative (*μήποτε*); and further, the mechanism by which he explains the movement of air from the sun to some particular wind seems radically different.

Steinmetz's minor emendation of the manuscripts' *οὔσης* to *ιούσης* might well be right (1964, 39 n. 2). If so, we should translate the genitive absolute "when the first movement *goes through* a narrow passage," rather than *is through*.

ψυχροῦ μὲν γὰρ ὄντος, ψυχρὸν θερμοῦ δὲ θερμόν. καὶ διὰ τούτου θέρους μὲν θερμά, χειμῶνος δὲ ψυχρά πνεύματα. καθ' ἑκατέραν γὰρ τὴν ὥραν τοιοῦτος ὁ ἀήρ.

Here Theophrastus elaborates upon ὡς ἂν ἔχον τυγχάνῃ πρὸς θερμότητα καὶ ψυχρότητα from the previous passage. The air pushed by the sun, which is hot because of direct contact with it, pushes the adjoining air, which pushes the ad-

<sup>277</sup> μήποτε δὲ καὶ ἐπὶ τῶν πνευμάτων τὸ αὐτὸ συμβαίνει, καὶ διὰ στενοῦ ἢ πρώτη κίνησις· εἴτ' ἐκείνον μὲν διήνεγκεν, ἕτερος δὲ ἀήρ ἐπιρρεῖ.

joining air, and so on, and all such air (and certainly by the time it reaches us) will have whatever temperature the ambient air has. In winter cold, in summer hot.

The particular season may well be a major factor determining the temperature of winds, which is perhaps why it is singled out here. But it is clearly not the only major factor: location (and especially north or south), as we have seen (§ 3), was said to be the most important factor. It could be that Theophrastus' context is local winds—i.e., that for any given location, the winds that blow there will be hot or cold or somewhere in between largely depending on the time of the year. This becomes clear in § 21 (to the extent that anything is clear in § 21).

In any case, we know that discovering and describing the causal factors behind the attributes of the various winds is never simple or straightforward; and like the other attributes, much more needs to be said about hot and cold, which Theophrastus continues discussing in §§ 21–25.

### *On Winds 21*

Having just said that the temperature of a wind is not determined by the heat of the sun but by the wind's location, Theophrastus *seems* to turn next (§ 21) to sketching the mechanism by which a wind can become extremely hot (or at least to indicating the circumstances under which some winds do). I say 'seems', because the text is in wretched shape, especially the first half. Wood writes of the first couple of lines, "This passage is hopelessly mutilated and corrupt" (1894, 32 n. 27); Steinmetz, *dessen Text heillos verdorben ist* (1964, 40). Coutant & Eichenlaub are far too complacent, as their translation and commentary do little to indicate how problematic this text is.<sup>278</sup>

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<sup>278</sup> As an indication of the limitations of Coutant & Eichenlaub's commentary, note that their sole comment on this extraordinarily difficult chapter is: "Steinmetz, p. 41, suggests that heat stored in the earth after the sun has delivered it there is contributive to making the local air torrid" (1975, 75).

φανερὸν δ' ὅπου διὰ τὴν (*lac. 8 litt.*) ἐκπεπρωμένον<sup>279</sup> οἶον τετύχηκεν.

Given the gender of τὴν, the length of the lacuna, and the content of the remainder of the chapter, I think the best candidate for filling the gap is θερμότητα: “Now it is obvious wherever, owing to the ⟨heat⟩, it (the wind or the location?) as it were happens to have been burned up.”<sup>280</sup> This is far from perfect, however, which is why I have left the lacuna in the text. In any case, what is the implied ‘it’ with which the sentence opens? I take it to refer to the previous point, that the temperature of a wind is determined by the location of the wind. But if that is right, then we should rather expect to read, at the beginning of this sentence, τοῦτο δὲ φανερὸν κτλ. (cf. § 25: τοῦτο δὲ δῆλον). Perhaps the absence of τοῦτο is another indication of the corrupt state of this text (the δέ having later been relocated post-positive by a scribe). The second implied ‘it’ could refer either to the location or to the wind there: an implied πνεῦμα works better with ἐκπεπρωμένον than Bonaventura’s ὁ τόπος (accepted by Coutant), though conceptually ‘location’ makes a bit more sense.

There remains an interpretive problem: If the point is to show that the temperature of the location, and not the heat from the sun, is what determines the temperature of winds, it seems odd to begin to establish that point by saying that this is clear if one considers the high temperature of the winds that blow in very hot (‘burned up’) lands (presumably deserts). How could one tell in such cases whether the hot location or the original heat from the sun was the cause of the wind’s intense heat? I think the solution is likely found in the next line (which, however, is in even worse shape).

ἐὰν γὰρ ὅπου (*lac. 6 litt.*) πνεῦμα καὶ ὁ τόπος (*lac. 8 litt.*) θερμὸν εἴτε ψυχρὸν ὁμως (*lac. 7 litt.*) διάφορα τοῦ ἀέρος [ἡρ πο] (*lac. 8 litt.*) ἂν ᾗ τοιοῦτος φαίνεται.

I see no point in trying to fill in the lacunae or (with minor exceptions) otherwise emending this thoroughly corrupt line, which an editor might well consider obelizing. Here are the exceptions: (1) In the two instances where the reading of ms. A is illegible, I print the reading of ms. D: πνεῦμα and ὁμως. (2) Where the manuscripts have πόθος (‘longing’, ‘desire’), I adopt Bonaventura’s

<sup>279</sup> ἐκπεπρωμένον is the reading of ms. D and the other manuscripts. In ms. A, all that can now be read is ἐκπε \* \* \* \* \* νον. Coutant’s ἐκπυρωμένον is presumably a typographical error (his *apparatus criticus* is no help here), as the word does not exist (and the present participle would be ἐκπυρούμενον).

<sup>280</sup> Bonaventura (1593, 151) suggested θερμότητα ὁ τόπος, which is much longer than the lacuna. Moreover, there is a problem with verb agreement (between τόπος and ἐκπεπρωμένον).



suggestion, τόπος (1593, 151).<sup>281</sup> (3) I bracket—that is, I do not try to make sense of—the freestanding letters ηρ πο found in ms. A (cf. Schneider 1821, 5: lvii, who reads όποιος). I render the line, such as it is and without punctuation: “For if where ... wind and the location ... hot or cold nevertheless ... difference of the air ... it appears may be such.”

Despite the corrupt state of the text, one can perhaps squeeze some meaning out of it.<sup>282</sup> I think it was clearly meant (to begin) to explain (γάρ) the point made in the preceding line, namely, that the temperature of the location, and not the heat from the sun, is what determines the temperature of winds. As I said, this would seem on the face of it not to make sense. But I think we can speculate that Theophrastus here made the point that whatever the temperature of the wind when it first reaches a scorched location—“hot or cold”—it becomes a hot wind. And a cold wind (say, beginning in a desert at night) becoming a hot one would support Theophrastus’ claim.

καὶ ἐν αὐτοῖς μὲν τοῖς τόποις (καὶ ἦττον) τοῖς συνεχέσιν ἔμπυρος ἢ πνοὴ γίνεται· πορρωτέρω δὲ προΐουσιν οὐχ ὁμοίως.

I think Theophrastus’ point here is the following: The incoming wind, whether hot or cold, becomes “fiery-hot” (ἔμπυρος) in the scorched location itself, and remains fiery hot (though less so) in the neighboring lands—as an indication not so much of the temperature of the neighboring location, but as a remnant of how hot the wind became in the scorched area. Further on, however, it is no longer as hot (or hot at all).

Wood (1894, 32) translates ἐν αὐτοῖς ... τοῖς τόποις “in the actual places of its origin,” which cannot be right. Theophrastus must be referring to the scorched land into which the wind blows, not to the wind’s location of origin. Cf. Coutant: “In these districts” (referring to what they translate “wherever the district has torrid air” in the opening line).

I am a bit bolder with the lacuna here, as καὶ ἦττον fits both the length of the lacuna and the context of the passage perfectly. Turnebus suggested καί alone.

<sup>281</sup> Here are some other attempts to make sense of the line: For the first lacuna, Bonaventura suggests βεῖ τὸ, whereas Coutant prints πνεῖ τὸ. For ὁ πόθος + lacuna, Turnebus ignores the lacuna and reads ὁπότε in place of ὁ πόθος, and Bonaventura suggests ὁ τόπος (ἐνταῦθα ἔμπυρος ἢ εἴτε)—which (minus ἐνταῦθα) was accepted by Coutant. For lacuna + διάφορα, Bonaventura suggests (καὶ πρὸς τῇ) διαφορᾷ, whereas Coutant prints a lacuna followed by (ἢ) διάφορα.

<sup>282</sup> Cf. Steinmetz (1964, 40): *Im folgenden Abschnitt, dessen Text heillos verdorben ist, war, wie es scheint, gezeigt, auf welche Weise die Temperatur der Luft sich ändern kann.*

ἐνίοτε δὲ καὶ τὸ ἄλλοθεν ἐπιόν, ἐὰν ἐξ ἐμπύρων ἢ τόπων καὶ ἐχόντων ἀέρα παχὺν καὶ διακεκαυμένον, καὶ ὑπερβάλλον φαίνεται τῇ θερμότητι.

Theophrastus has made the point that whether hot or cold, the wind entering a scorched location will become hot owing to that location. But here I take him to be claiming that this does not mean that it makes no difference to the resulting temperature whether the incoming wind is hot or cold. If the air that makes up the incoming wind—or the air in the location from which that wind comes—is (already) “thick and full of fire,” then its temperature will become (owing to the heat of the scorched location) excessively hot—even hotter than a cold wind made hot by that same location.

Re. παχύν (“thick”): I translate the more frequent (in *On Winds*) πυκνός “dense” (discussed above, p. 124). It is not entirely clear what the difference between παχύς and πυκνός is, when applied to air or winds. In Theophrastus’ botanical works, παχύς is quite common and virtually always refers to the physical thickness of parts of plants and trees (e.g. root, trunk, leaf). See e.g. *HP* 1.2.6, 3.8.4, 9.11.2 (three examples out of dozens). I suspect that Theophrastus is stressing that the air referred to is especially thick in the sense of being extremely humid. This is confirmed by the only other appearance of παχύς in *On Winds*: in § 23, discussing winds coming off of rivers and lakes, he says that “the vapor is thicker” (παχύτερος ὁ ἀτμός). So his point (in § 21) is that incoming wind that is extremely hot and humid will, owing to the additional heat of the scorched location, become “excessive.” In what sense it is excessive is explained in the next passage.<sup>283</sup>

Re. διακεκαυμένον (“burned through” or “containing fire”<sup>284</sup>): Something like this suggestion of Schneider’s is necessary in place of the manuscripts’ διακέιμενον (“well-situated” or “affected”).

διὸ καὶ οἱ ὁδοιπόροι μὲν καὶ θερισταὶ πολλάκις ἀποθνήσκουσιν ὑπὸ τῶν τοιούτων πνευμάτων, ἐν τοῖς πεδίοις καὶ ἐν τοῖς πνιγεροῖς τόποις, τὸ μὲν αὐτοῦ συνεργαζομένου τοῦ συνυπάρχοντος ἀέρος, τὸ δὲ τοῦ διαφόρου διὰ τὴν πνοὴν καὶ τὴν πρόσπτωσιν.

This passage is meant to explain (διὸ καί) the previous one: incoming hot wind in collaboration (so to speak) with the hot air of the region (i.e. “the pre-existing air”) combine to produce an excessively hot wind. The pre-existing air

283 Coutant translates παχύς “thick,” Wood “close” (which I take to mean “closely packed,” a meaning I would associate more with πυκνός).

284 On the latter, see *Suda* Σ 571: Διακεκαυμένον: πῦρ ἐν ἑαυτῷ ἔχον. (My thanks to Christian Wildberg for this reference.)

contributes its heat, the “different” air (i.e. the incoming wind) its heat *and* its impact or pressure (πρόσπτωση). I take it that the stronger the incoming wind, the greater its impact—the more pressure it exerts—which makes it that much more excessive.

The heat is called excessive because it is capable of killing people. I assume that “fields” refers to agricultural lands<sup>285</sup> and “stifling locations” to deserts, and that reapers during harvest time,<sup>286</sup> in the fields, and travelers through either—exposing themselves to the elements on days when the temperature is high and the winds are strong and hot—could be at risk of dying from the heat.<sup>287</sup>

Theophrastus is here not simply explaining or illustrating what he means by excessive heat, he is also providing empirical or anecdotal evidence for his claims.

Two minor textual issues: (1) In the second half of this passage, the manuscripts read τὰ μὲν ... τὸ δὲ. This should be emended either to τὸ μὲν ... τὸ δὲ (recommended by Bonaventura) or to τὰ μὲν ... τὰ δὲ (recommended by Turnebus). I prefer the neuter singular. (2) Because the move from § 21 to § 22 is abrupt, Schneider posits a lacuna between the end of § 21 and the beginning of § 22. (His chapter numbers are in the margin, and this lacuna is in the middle of the line, so it is unclear whether he intended it to be at the end of one chapter or the beginning of the other, or even whether he thought this made a difference.) Wimmer places it at the end of § 21, Coutant at the beginning of § 22. I was tempted to follow Coutant here, but decided in the end that it was not necessary to tamper with the text further. (See the opening paragraph of the next section.)

285 I usually translate πεδῖον “plain,” but here Theophrastus is clearly referring to a field of crops, at harvest time.

286 Harvest time is of course not at the height of summer, but in autumn. In Greece and certainly in places like Egypt, however, the heat could no doubt become quite intense (and unexpectedly so) for a farmer working in the field all day.

287 An article entitled “Heat: A Major Killer,” on the website of the *National Weather Service: Office of Climate, Water, and Weather Services* (no date), includes the following: “strong winds, particularly with very hot, dry air, can be extremely hazardous” <http://www.nws.noaa.gov/os/heat/index.shtml>. An article in *The National*, a newspaper of the United Arab Emirates (July 12, 2012), reported: “The searing sunshine is being caused by continuing southerly winds from desert areas .... [A] forecaster at the National Centre of Metrology and Seismology in Abu Dhabi ... urged the public to avoid being outdoors at about midday” <http://www.thenational.ae/news/uae-news/uae-weather-desert-winds-send-temperatures-soaring>. (Both last accessed 21 October 2016.)

*On Winds* 22

§ 21 discussed hot winds; § 22 turns to an apparent problem or puzzle involving hot winds. Although it is on topic in that it deals with the temperature of winds, it is not a perfect fit (but then so many ‘chapters’ in *On Winds* are not) and it is almost certainly incomplete. I think it possible that this material was inserted (perhaps later) from Theophrastus’ *Metarsiology*, either by Theophrastus himself or by someone else, and that it cannot be understood without the relevant evidence from or about that other work.

ὅτι δ’ ὑπ’ αὐτοῦ μόνος κινούμενος ὁ ἀήρ ὁ ὑπὸ τοῦ θερμοῦ κρατούμενος ταύτην φέρεται τὴν φορὰν ἀκείθεν δῆλον·

I suspect the statement of the problem—or the claim that some people wonder about it—is missing from the opening of this passage.<sup>288</sup> It may be the same problem with which *Pr.* 25.14 is concerned: “Why does air ⟨moved by heat⟩ not travel upwards?”<sup>289</sup> In *Pr.* 25.14, the line that follows the opening question presents the issue more succinctly than (the remains of) Theophrastus’ account in § 22:

For if the winds occur when the air is moved by heat, and fire by its nature travels upwards, then the wind too should go upwards, since that which sets in motion runs upwards and that which is moved travels by its nature in the same direction.<sup>290</sup>

But these (and any other) winds do not travel upward. The problem might be broader than this (or related to one that is broader), namely, why do the winds not move upward or downward, but sideways?<sup>291</sup> (More on this shortly.)

Note Sharples (1998, 155): “Capelle (1913, 344) notes that Theophrastus’ explanation implies natural movements of the elements and hence the Aristotelian

288 As I mentioned earlier, Schneider (followed by Wimmer and Coutant) in fact insert a lacuna between §§ 22 & 23. I was tempted to do so as well.

289 Διὰ τί ὁ ἀήρ ὑπὸ θερμοῦ κινούμενος οὐκ ἄνω φέρεται; Inserted material following Ruelle et al. (1922).

290 εἰ γὰρ τὰ πνεύματα τούτου κινουμένου ὑπὸ τοῦ θερμοῦ γίνεται, πέφυκε δὲ τὸ πῦρ ἄνω φέρεσθαι, καὶ τὸ πνεῦμα εἰς τὸ ἄνω ἐβάδιζεν, εἴπερ τό τε κινοῦν εἰς τὸ ἄνω θεῖ καὶ τὸ κινούμενον οὕτω πέφυκε φέρεσθαι.

291 Note the last line of *Pr.* 25.14: “But as it is, (the air) obviously produces an oblique movement” (νῦν δὲ φαίνεται λοξὴν τὴν φορὰν ποιοῦμενος).

doctrine of natural place (even if not of those places themselves having an attractive power) ....”

Two comments on textual matters: (1) Turnebus’ emendation of the manuscripts’ ὅπου το ὅτι makes sense. (2) Most editors have emended the passage so as to make a negative contrast (‘neither X nor Y’)—adding οὔτε ... οὔτε or οὐδέ ... οὐδέ somewhere in this line. I have tried to make sense of the passage without such an intrusion into the text.

εἰ μὲν γάρ διὰ τὸ ψυχρὸς φύσει καὶ ἀτμιδῶδης κάτω ἂν ἐφέρετο, εἰθ’ ὑπὸ τοῦ θερμοῦ ἄνω. τοῦ γὰρ πυρὸς κατὰ φύσιν αὕτη ἡ φορά. νῦν δ’ ὥσπερ ἐξ ἀμφοῖν μικτή, διὰ τὸ μὴδ’ ἕτερον κρατεῖν.

These lines explain the previous one: why the nature of air alone (even hot or cold air alone, or wet or dry air alone) cannot explain the motion of winds, with an indication of what does explain it. There is clearly an implicit reference to exhalations here (which I will confirm shortly, citing other relevant Theophrastean materials). Theophrastus is or seems to be arguing that the natural movements of the exhalations or vapors that become wind cannot themselves alone explain the motion of winds. For air that is cold and wet would move downward, as that is the natural movement of cold and as water is heavier than air. So if this alone were responsible for the motion of wind, it would move downward, toward the earth. Similarly, the direction of hot wind cannot be explained merely by its heat. For given the lightness of air and even more so of heat and fire, if this alone accounted for the direction of hot wind, it would move straight up. But in fact the path or direction of all wind is “mixed.”

It is surprising that Theophrastus nowhere says explicitly what this mixed motion is—perhaps because it is obvious. But he certainly discussed it elsewhere. The following passages make clear that § 22 is missing much more than simply the opening statement of the problem, and/or is drawing or relying on a more elaborate discussion from his *Metarsiology* of the direction of winds. I think it likely to be both.<sup>292</sup>

292 Cf. Arist. *Mete.* 1.4.342a24–27: Discussing various ‘meteorological’ phenomena in the upper air, like the motion of shooting stars, Aristotle writes: “In most cases the (direction) is sideways, because two paths are being traveled, one by force downward, and one by nature upward; for all such things travel along the diameter. And this is why the path of most shooting-stars is oblique.” (τὰ πλείστα δ’ εἰς τὸ πλάγιον διὰ τὸ δύο φέρεσθαι φοράς, βίᾳ μὲν κάτω, φύσει δ’ ἄνω· πάντα γὰρ κατὰ τὴν διάμετρον φέρεται τὰ τοιαῦτα. διὸ καὶ τῶν διαθεόντων ἀστέρων ἡ πλείστη λοξὴ γίγνεται φορά.)

Here is the evidence from or about Theophrastus' *Metarsiology*.

- (1) <The movement which is sideways and crooked (can be found in winds which) result from two (kinds of) vapors: the one is heavy (and descends, the other is light and) rises up. The heavy (vapor) is moved (towards the light one and thus)) the winds move in a crooked movement.<sup>293</sup>

THPHR. *Metars.* 13.21

- (2) Theophrastus says that the cause of the oblique motion of the winds is that they do not simply come to be from both the dry and the hot exhalation; for (if they did) they would travel upward.<sup>294</sup>

ALEXANDER OF APHRODISIAS, *On Aristotle's Meteorology* 2.4.361a22–b1 [CAG vol. 3.2 pp. 93.26–94.2] = 186A FHS&G [partial; FHS&G trans., slightly modified]

- (3) Theophrastus gives one explanation of the oblique motion of the winds in his *Metarsiology*, Aristotle here another. Theophrastus says that in this smoky exhalation there is a mixture of a certain fiery substance and of an earthy one; and that, being moved in opposite directions and conflicting with each other, they make the motion an oblique one. No one should object, why does not either the upper motion give way, when the earthy (substance) prevails, or the downward motion, when there is an excess of the fiery (substance), the motion coming to be in a straight line?<sup>295</sup> For one should reply, that this is correct where mixed bodies are concerned; for in the case of these it is necessary that there should be a giving way, as each of the disproportions is suppressed. But in the case of bodies which are unified by juxtaposition this does not follow; for each of (the constituents), having the same force, remains and resists. And for this reason, as neither yields, by a change of direction the whole is moved sideways. Thus, then, Theophrastus.<sup>296</sup>

OLYMPIODORUS, *On Aristotle's Meteorology* 1.13.349a12–b1 [CAG vol. 12.2 p. 97.5–17] = 186B FHS&G [FHS&G trans., slightly modified]

293 All that the Arabic version has is “the winds move in a crooked movement.” In his translation, Daiber supplements this with material from the Syriac fragment (the content of the pointed brackets; see Daiber 1992, 167, 268 n. 115, & 279).

294 Θεόφραστος δὲ τὴν αἰτίαν τῆς κινήσεως τῆς λοξῆς τοῖς ἀνέμοις φησὶ γίνεσθαι διὰ τὸ μὴ ἀπλῶς αὐτοὺς ἐκ ξηρᾶς τε καὶ θερμῆς ἀναθυμιάσεως γίνεσθαι· ἄνω γὰρ ἂν ἐφέροντο.

295 Wood (1894, 33 n. 29) does so object, adding that if one force does not master the other, there should be “equilibrium,” not sideways motion.

296 τῆς δὲ λοξῆς κινήσεως τῶν ἀνέμων ἄλλην μὲν αἰτίαν ὁ Θεόφραστος ἐν τοῖς οἰκείοις Μετεώροις

Sharples (1998, 153) comments on 186A–B FHS&G (my (2) and (3)):

These texts amplify information on the reason for the sideways movement of the winds that we are given in Theophrastus, *On Winds* 22. How far they actually reflect independence is questionable; what Olympiodorus adds seems to be wrong, and Alexander may be interpreting rather than reporting.

I think Sharples is right to suggest that Olympiodorus is wrong, in that Olympiodorus claims that an earthy exhalation is part of Theophrastus' account of wind (a claim for which there is no [other] evidence), where we would expect a reference to moist exhalation. But however much interpretation may be involved in these passages, I think they do point to material contained in Theophrastus' *Metarsiology* (or even his *On Winds*) which is no longer extant—however muddled the accounts, or rather, however difficult it is to determine the genuine Theophrastean material.<sup>297</sup>

The winds move sideways because the natural upward impulses (the lightness of the air, and the natural direction of heat) clash with the downward forces caused by the wet and cold material contained in the exhalations. Air is cold by nature; and when it is full of vapor (ἀτμιδῶδης) as well, the cold and moisture together, in contrast to or in contact or mixed with air that is hot and containing less moisture, descend. But one would think that Theophrastus' account would also have to include the role of the sun, pushing air perpendicular to its path (§2). Perhaps all such additional factors come up only in discussion of the various winds, and not in an account of the motion of wind generally. Much remains unclear, including how many exhalations are at play, and if more than one, what their precise natures are.

I accept two emendations from Turnebus: (1) ἀν ἐφέρετο for ἀνεφέρετο, as ἀν seems necessary here (with εἰ), and because κάτω ἀνεφέρετο is a contradiction; and (2) τοῦ ... πυρὸς for τὸ ... πῦρ ὥς, as the former works perfectly and I

ἀποδίδωσιν, ἄλλην δὲ νῦν ὁ Ἀριστοτέλης. ὁ γὰρ Θεόφραστος φησιν ἐν τῇ καπνώδει ταύτῃ ἀναθυμιάσει μεμῖχθαι τινα πυρῶδη οὐσίαν καὶ γῆϊν, αἵτινες τὴν ἐναντίαν κίνησιν κινούμεναι καὶ μαχόμεναι λοξὴν ποιοῦνται τὴν κίνησιν. μὴ γὰρ τις λεγέτω, ὅτι διὰ τί γὰρ μὴ ὑφίεται ἡ ἢ ἐπὶ τὰ ἄνω κινήσεις τοῦ γεώδους ἐπικρατοῦντος ἢ ἢ ἐπὶ τὰ κάτω τοῦ πυρῶδους πλεονάζοντος ἐπ' εὐθείας τῆς κινήσεως γινομένης; ῥητέον γάρ, ὅτι τοῦτο καλῶς λέγεται ἐπὶ σωματῶν κρεμαμένων· ἐπὶ γὰρ ἐκείνων ἀνάγκη ὕφειν γενέσθαι ἐκατέρας ἀμετρίας κολαζομένης, ἐπὶ δὲ σωματῶν κατὰ παράθεσιν ἐνωθέντων οὐχ ἔπεται τοῦτο· ἐκάτερον γὰρ τὴν αὐτὴν ἔχον ἰσχύϊ μὲν ἀπομαχόμενον. διὸ μηδενὸς ὑπείκοντος ἐκ περιστάσεως τὸ ὅλον εἰς τὰ πλάγια φέρεται. οὕτω μὲν ὁ Θεόφραστος.

297 On frs. 186A–B FHS&G, see Steinmetz (1964, 41–43) and Sharples (1998, 153–155).

could not make sense of the latter. The text could be made smoother by accepting a third suggestion of his—inserting εἶναι after ψυχρός (which he changed to ψυχρός)—or by reading <τὸ> ἀτμιδῶδες in place of ἀτμιδῶδης, but in the end the paradox is not impossible and the meaning in any case is the same.

### *On Winds 23*

Theophrastus' discussion of the temperature of winds has so far focused on hot winds and on why their heat is not caused by the sun but by location. He now (§§ 23–24) turns to cold winds, to demonstrate that their temperature too is the result of location. He does not discuss cold winds generally, however, but those that are, so to speak, produced locally, from rivers and lakes. They are later (in § 24) referred to as αἶραι (which I translate 'breezes').

Cf. *Pr.* 26.30 (≅ 23.16) for a couple of alternative Peripatetic explanations for why breezes blowing from rivers at dawn are cold.

τούτῳ μὲν οὖν καθόλου τῷ κοινῷ, ὅτι ὁποῖος ἂν ὁ ἀήρ ἢ ἀναθυμίασις καθ' ἐκάστους ἢ τόπους, οὕτως ἔξει καὶ τὰ πνεύματα τῇ ψυχρότητι, καὶ τάδε συμμαρτυρεῖ:

Theophrastus presents a universal general principle—what is common to winds generally: “such as the air or exhalation is in each location, so too will the winds be with respect to cold.” This is surprising. In fact, I think that the present state of this passage reveals that something is missing prior to it and/or that it has been condensed to the point of corruption.<sup>298</sup> The universal general principle that Theophrastus has been discussing and demonstrating is that the temperature of a wind (hot or cold) is determined by the wind's location—broadly construed to include both the location of origin and the location into which a wind blows. But here he is talking about one crucial feature of a location (and not an external location of origin) with respect to its causal influence on the temperature of wind, and how this influence specifically produces cold in winds. So I suspect that originally the general principle was stated in a way that was truly general and common, and that Theophrastus then turned to applying it in the case of air rising off of rivers and lakes causing cold winds.

298 As I indicate at the beginning of my discussion of § 24, I think §§ 23–24 were in part dealing with or 'solving' an apparent problem. The statement of this problem might be part of what is missing here.



I accept one emendation of Schneider (and was tempted to accept one other): I have printed τούτω ... τῷ κοινῷ in place of the *paradosis* τούτο ... τὸ κοινόν.<sup>299</sup> This is necessary, because συμμαρτυρέω requires a dative: τούτω καθόλου τῷ κοινῷ ... καὶ τάδε συμμαρτυρεῖ: “to this universally general (principle) ... the following too bear witness.” I was tempted to follow Schneider and insert an ἡ between ἡ and ἀναθυμιάσις. (Cf. § 7.51: where ms. A has ἡ, POxy 3721 has the superior ἡ ἡ.) Although providing ἀναθυμιάσις with its own article is attractive, it is not in fact necessary.

I was also tempted to accept Steinmetz’s (1964, 44) addition of τῇ θερμότητι καὶ before τῇ ψυχρότητι: “so too will the winds be with respect (*to hot and*) *to cold*.” But I believe the corruption or condensation of this passage involves more than one missing key term. Moreover, it could be that when Theophrastus originally wrote here about air or exhalations influencing winds, he had already moved from the general principle to the specific discussion of cold wind.

ὅσα γὰρ ἀπὸ ποταμῶν ἢ λιμνῶν πάντα ψυχρὰ διὰ τὴν ὑγρότητα τοῦ ἀέρος.

This line is highly condensed as well, though its meaning is clear as is its role in context. The fact that all winds blowing off of rivers and lakes are cold supports the claim that the temperature of winds is determined by location. The line is especially terse in that it does not merely make this point, but adds the causal factor that makes the statement true: the moistness of the air that rises off of these bodies of water causes the winds so produced to be cold.

Bonaventura (1593, 156) argued for replacing ὑγρότητα with ψυχρότητα, so that Theophrastus would be claiming that the winds “from rivers or lakes are cold because of the *coldness* of the air.” But this misses Theophrastus’ point (and in fact undercuts it). He is not simply saying (what he has said elsewhere) that the temperature of a particular location influences the temperature of a wind—for instance, Boreas is a cold wind because it comes from the north (§ 3). He is making the point that the temperature of wind is determined by other features or factors of a location as well, and does not simply match the ambient temperature of some location. In the present case, he is claiming that locations with rivers and lakes will tend to have colder winds—at least those breezes blowing off of these bodies of water will be—and the implication is that these winds are colder than they would have been otherwise if there were not present such bodies of water. (In fact, such winds would not exist at all without them.) Now Bonaventura argues that this change in the text is necessary, because

299 The last letter of τούτο (the reading of ms. D) is illegible in ms. A.

Theophrastus had earlier made a connection between humid air and fiery hot wind (in § 21 = Bonaventura's Text 23). And this is a puzzle. I assume the thick air that Theophrastus mentions in § 21, which must be a reference to humid (and so moist) air, when heated makes the wind that consists of such air especially hot. But the air or exhalations rising off of rivers are naturally cold, because air is essentially cold and water is essentially moist, and neither is hot by nature; so moist air rising off of bodies of water will be cold, unless they are heated by the sun. Yet that (Theophrastus says in the very next section) is precisely what is missing from the breezes blowing off of such bodies of water.

ἀποψύχεται μὲν γὰρ ἀπολείποντος τοῦ ἡλίου, καὶ ἅμα παχύτερος ὁ ἀτμός, καὶ ἔτι δ' εἰ σύνεγγυς, ὥσθ' ὅταν προσπίπτῃ, συμβαίνει καθάπερ (ὑγ)ρανσὶν τινα γίνεσθαι τοῖς σώμασι.

Theophrastus here explains why the vapor rising off of lakes and rivers is cold, and offers direct evidence for his claim.

The vapor is cold because (a) as stated above, moist air is naturally cold, and (b) the sun has left off or failed (ἀπολείποντος), i.e. once the sun sets, these bodies of water receive no external heat and so cool down. There is no explanation here or elsewhere for this process of exhalation or evaporation. I assume that, as in Aristotle, the sun is a main causal agent; but in this case the process continues: the very moist vapor continues to rise and—after the sun has set—cools down.

The heavy, cold mist that forms in these regions overnight (and is presumably especially visible and tangible at dawn) is direct perceptual evidence for his claim. And the fact that the vapor is especially thick (i.e. moist) near the lakes and rivers themselves (ἔτι ... εἰ σύνεγγυς) proves the connection between this attribute and these bodies of water. This vapor—or this vapor especially near these bodies of water—is experienced like (cold) rain: it is so thick it actually makes our bodies wet. Perhaps this is meant to provide a contrast with experiencing very hot and humid air: however moist it might make us, through producing sweat, it is not similar to coming into contact with rain.

Theophrastus continues to discuss rivers in §§ 24–25. See also §§ 46 and 53.

This passage involves one major textual difficulty: in the manuscripts, ῥάσιν—the word that follows καθάπερ—is a mistake.<sup>300</sup> The phrase in which

300 It exists only once (elsewhere), in Orion's *Etymologicum* (5th c. AD): ῥυτήρ. ἀποβολή τοῦ σ. παρὰ τὴν ῥάσιν, ἐρύσω, ἐρυτήρ καὶ ῥυτήρ. The relevant claim is that ῥυτήρ ('strap') is derived from ῥάσις.

this erroneous word appears is describing what happens or is experienced whenever this thick cold vapor makes contact with our bodies, and so any plausible alternative must fit that context: “just as if some \* \* \* happens to our bodies.” Bonaventura (1593, 156) surprisingly passes over this word without comment. Turnebus struggled with it: He underlined ῥάσιν, and in the margin wrote a note, most of which I cannot make out, though it includes *fortasse ... ῥάνσιν*. The word ῥάνσιν does not (otherwise) exist; but underneath his underlined ῥάσιν, Turnebus also wrote ἔρραμαι *vel* ἔρρασμαι—two perfect forms of ῥαίνω (‘sprinkle’, ‘stain’, ‘drip’). So Turnebus was speculating that ῥάσιν or ῥάνσιν is a noun derived from ῥαίνω, and thus that Theophrastus is saying something like: “just as if some *wet stain* (?) is produced.” Furlanus suggests ῥῶσιν: “just as if some *strengthening/health* is produced.” Perhaps his thought was that this morning mist is invigorating, which implies that it is cold. (He is followed by Schneider.) Wimmer prints ῥίγωσιν, and this too does not (otherwise) exist. Like Turnebus, he apparently generated a noun from a verb he thought fit the context: ῥιγέω means ‘shiver’ or ‘shudder’ and so ῥίγωσιν would mean (in this context) ‘shivering’.<sup>301</sup> The mist produces shivering, which is proof that it is cold. Wimmer is followed by Wood and Coutant. I originally thought some form of ῥάνις (‘rain drop’) might work,<sup>302</sup> though that would require changing the singular to the plural. So in the end, I accepted an original suggestion of Christian Wildberg: ὕγρανσιν (LSJ s.v. ὕγρανσις: *wetting, watering*), a relatively rare word, but a perfect fit.<sup>303</sup>

Another (minor) textual point: The ἡ in the manuscripts’ καὶ ἔτι δ’ ἡ σύνεγγυς does not make sense, and Bonaventura’s εἰ for ἡ (1593, 156) works better than Furlanus’ ἦ (1605, 87). Schneider’s <μᾶλλον> is tempting, but too much of an intrusion; and I suspect καὶ ἔτι basically implies the same thing.

301 LSJ s.v. ῥίγωσις: “*shivering*, prob. cj. for ῥάσιν in Thphr. *Vent.* 23.”

302 Also derived from ῥαίνω, it means ‘drop’ (including ‘rain drop’). See Arist. *Mete.* 1.13.349b31.

303 David Sider suggested to me αὔραν (‘breeze’), which is worth considering (cf. the reference in § 24 to breezes blowing off of rivers and lakes). If this is right, then Theophrastus is not providing evidence for cold and very moist vapor being produced by these bodies of water, but more basically for the generation of breezes off of them.

*On Winds* 24

Theophrastus continues his discussion of cool breezes rising off of lakes and rivers. I think it becomes clear that in §§ 23–24 he was (*inter alia*) at least implicitly dealing with a puzzle or problem (similar to the one raised in § 19): How can the rising sun cause or set in motion *cool* breezes?

In § 24, Theophrastus provides important information about his conception of the mechanics of wind production, though it is not presented systematically. Rather, he seems to be relying on a prior discussion of the nature of winds generally (as in § 1 he said he would be doing).

Ms. A is in particularly bad shape here: I had to rely on ms. D eight times in just over seven lines of text. See the *apparatus criticus* for details.

καὶ διὰ τοῦτο πολλάκις ἔγκοιλοι καὶ εὐσκεπεῖς τινὲς ὄντες τόποι τῶν ἔξω πνευμάτων  
ὑπὸ τῶν ἐγγωρίων εἰσὶ ψυχροί·

The τοῦτο here refers to a central point in § 23, that the breezes coming off of lakes and rivers are cold. Regions that are “hollow and well-protected from outside winds” provide Theophrastus with something like a controlled experiment for the point he is making: for in such places, it is clear that if the temperature is cold it is not because of any winds coming from outside, but because of winds coming off of rivers and lakes in that region.

Re. πολλάκις: It is unclear whether Theophrastus is saying that locations that are hollow and well-protected are often cold, or that locations are often hollow and well-protected, and thus cold. I suspect it is the latter.

τὸ γὰρ ἀναχθὲν ὑπὸ τοῦ ἡλίου μένειν οὔτε πεφυκὸς οὔτε δυνάμενον φέρεται καὶ ποιεῖ  
πνοήν, ὅθ' αἶ τε ἀπὸ τῶν ποταμῶν καὶ λιμνῶν αὔραι καὶ ὅλως αἱ ἀπόγειαι πνέουσιν  
ἔωθεν, ἀπόψυχομένης τῆς ἀτμίδος διὰ τὴν ἀπόλειψιν τοῦ θερμοῦ.

This is further evidence that Theophrastus accepts at least some form of Aristotle's conception of exhalation. The heat from the sun, as it passes over a particular region of the earth, causes something (from lakes and rivers) to be raised up. Wood translates τὸ ἀναχθὲν ὑπὸ τοῦ ἡλίου “the air raised by the sun.” But given that this is an explanation of cold winds, surely Coutant has the right idea: “the vapor raised by the sun.”

On the precise meaning of αὔραι (and the complexities involved in determining that), see Baxendale (1994). In any case, I translate it ‘breezes’.

This is part of Theophrastus' explanation (γάρ) of the proceeding: the motion involved in the rising of vapor out of rivers and lakes produces air-flows,

and this local production of air-flow (cold because moist and unheated by the sun) explains the cold of the region. Since the moist air coming off of the lakes and rivers explains the cold breezes of this region, we can assume that this vapor itself *becomes* the local breeze (rather than simply pushing the ambient air, which then becomes the breeze). But much is unclear.

Following the first clause, Theophrastus explains how it is that the appearance of the sun can cause these cold winds to blow.<sup>304</sup> By dawn, the waters of these rivers and lakes are at their coldest (for any given day), because of the hours-long absence of the sun. The rising of the sun (immediately?) begins the production of vapor, which rises off of these bodies of water; but the sun is not high enough in the sky—and/or has not been exerting its influence long enough—to noticeably affect the temperature of the water, which remains cold. Hence, there is a cool breeze. This, I take it, is the gist of what Theophrastus is saying. But again, much remains unclear.

Re. ὅλως αἱ ἀπόγειαι: This is puzzling. The author of *Pr.* 26.5 defines ἡ ἀπογεία as follows: “the offshore (breeze) is an air-flow coming from the land towards the sea” (ἡ δὲ ἀπογεία τὸ ἐκ τῆς γῆς πρὸς τὴν θάλατταν πνεῦμα γινόμενον, 940b24); and this is the standard meaning of ἡ ἀπογεία (and of “offshore” in English, when referring to wind). And it is the apparent meaning in §§ 26, 31, and 53. But in § 24, the reading of the manuscripts would seem to require the opposite meaning: breezes from rivers and lakes and in general those blowing off the water and onto land. Perhaps Theophrastus is simply being inconsistent. Judging by his translation, this is the view of Wood, who renders the term one way in § 24 (“breezes off the land”) and § 31 (“off-the-land winds”), and another in § 26 (“‘off-shore’ breezes”) and § 53 (“‘off-shore’ winds”). But I find this quite unlikely. The possible culprit is ὅλως: “breezes from rivers and lakes and *in general* the offshore breezes” implies that breezes from rivers and lakes are types of offshore breezes<sup>305</sup> (which is absurd, and which led Wood to translate αἱ ἀπόγειαι inconsistently). I was in fact tempted to print [ὅλ]ως, in which case the phrase could be rendered “breezes from rivers and lakes, like offshore breezes as well, blow at dawn.” The offshore breezes, like those off of

304 He seems to present this as a conclusion, which is why Schneider’s conjecture (ὅθεν for ms. A’s ὅθ’) is so attractive. I have reluctantly retained ὅθ’, however, rendering it in its causal sense. (LSJ s.v. ὅτε B: “ὅτε sts. has a causal sense, *when, seeing that*, mostly with pres. ind.”)

305 This is confirmed by the seven (other) occurrences of καὶ ὅλως in *On Winds* (§§ 1 [bis], 9, 25, 30, 34, 53), and by the hundreds of occurrences in the botanical writings. This in turn counts against solving the problem by rendering the Greek “breezes from rivers and lakes, and generally the offshore (breezes), blow at dawn,” as if the former breezes are not included in the latter.

rivers and lakes, would have to come from moist exhalations rising at dawn owing to the rising of the sun. This could be seen as an instructive comparison, and it introduces offshore breezes, which are (with alternating breezes) the topic of § 26. Another possible explanation is that καὶ ὅλως αἱ ἀπόγειαι was an (inaccurate or misplaced) marginal gloss absorbed into the text.

τὴν γὰρ αὖραν ταύτην αὐτὴν γίνεσθαι κατὰ λόγον ἐστὶ διὰ τε τᾶλλα καὶ διὰ τὴν εὐδίαν.

This is an odd line, quite difficult to make sense of. In ms. A, the words θύραν ('door' or 'entrance') and κατ' ὀλίγον ('little by little') make no sense in context. Schneider's αὖραν for θύραν should be accepted, as it is much better paleographically and somewhat better conceptually than Furlanus' φοράν, and both are superior to Turnebus' ὥραν. Further, one ought to accept Turnebus' κατὰ λόγον for κατ' ὀλίγον. Thus: "For it is according to reason for this very breeze to come to be" etc. I was also tempted to accept the reading of ms. N, which omits αὐτὴν (possibly an emendation—taking ταύτην αὐτὴν to be the product of dittography?—rather than a scribal error). Bracketing αὐτὴν yields "this breeze" rather than the (to my mind) unnecessary "this very breeze"; but in the end I did not wish to tamper with the text further. In any case, I think the reading in ms. N is superior to Coutant's change of ταύτην αὐτὴν to τοιαύτην ("such a breeze").

Thus emended, Theophrastus is in the first half of this line supporting or summing up (γὰρ) the preceding line by pointing out that another puzzling phenomenon—that the rising sun is (in part) responsible for certain *cold* breezes—has been shown to be reasonable or logical (κατὰ λόγον). He goes on to say (somewhat surprisingly<sup>306</sup>) that cold breezes blow off of rivers and lakes "owing to fair weather among other things":<sup>307</sup> fair weather being another reason for these cold breezes blowing off the water at dawn. In light of what follows (in the remainder of § 24 and in § 25), I assume Theophrastus is saying that the explanation he has given is true only in fair weather (with at most moderate rain). If the weather is extremely hot (see § 25) or extremely cold, or if there is a great deal of precipitation, then these cold breezes will not come to be.

306 Bonaventura (1593, 157): *Non est facile videre quid dicat εὐδία hoc loco ...*

307 More literally, "owing to other things and owing to the fair weather" (διὰ τε τᾶλλα καὶ διὰ τὴν εὐδίαν). Of the two earlier English translations, I prefer Coutant's "because of fair weather among other reasons" to the under-translated "particularly from calm" of Wood.

καὶ ὅταν ψεκάδια καὶ ὑετοὶ μέτριοι γίνωνται μᾶλλον πνέουσι· προσγίνεται γὰρ ἡ ὕλη τότε πανταχοῦ καὶ μᾶλλον αἱ ἀπόγειαι γίνονται μετὰ τοῦτο.

As just indicated, this passage is a continuation of the previously mentioned condition of εὐδία: that Theophrastus' explanation applies only in fair weather, but that fair weather includes drizzling and moderate rain.<sup>308</sup> But more than that: as moisture is part of the material cause of winds (including breezes), to a certain extent to increase the moisture is to increase the breeze. So when there is drizzling, these breezes "blow more" (μᾶλλον πνέουσι): this is somewhat ambiguous, as it could mean that the breezes blow off the water more often or with more force or for a longer time. It is not entirely clear what it means to say that the material is added "everywhere" or (as I translate it here) "all around" (πανταχοῦ), but I assume the idea is that water is added evenly to every part of the body of water from which the breeze arises. It could also mean that the water falls everywhere, on the body of water and on the land in contact with it. That would help explain the odd reference to offshore breezes with which § 24 ends. Water accumulating on land would tend to create or make more abundant the moisture necessary for the exhalations from the land, which are the source of offshore breezes. Nevertheless, it is unclear to me what purpose is served by the addition of καὶ μᾶλλον αἱ ἀπόγειαι γίνονται μετὰ τοῦτο, and I suspect it may originally have been a marginal gloss.

Two textual issues: (1) The manuscripts' δεκάδια is not a word. The Aldine's ψεκάδια differs by one letter and works well conceptually. According to LSJ (s.v. ψεκάδιον), it is a later form of ψακάδιον, a diminutive of ψακάς ('drizzle'). It appears twice elsewhere in Theophrastus (CP 4.14.3, 5.10.1). (2) The manuscripts' προσγίνεται γὰρ ἡ ὅλως τότε κτλ. makes no sense; and although the Aldine's omission of ἡ is an improvement, I think a more radical emendation is necessary: Bonaventura's (1593, 158) excellent suggestion—*Fortasse pro ὅλως, ὕλη legendum est*—was accepted by Wimmer and Coutant. It makes perfect sense. (Pace Wimmer and Coutant, however, with such an emendation there is no need to omit ms. A's ἡ.)

### *On Winds 25*

As indicated above, in § 24 Theophrastus makes it clear that his account of cool breezes rising off of lakes and rivers applies only within certain other meteoro-

308 The καὶ in ψεκάδια καὶ ὑετοὶ μέτριοι could here mean 'or' or 'i.e.'

logical conditions: there must be fair weather, i.e. moderate temperature and little or no rain. This implies that if there is too much rain, or if the temperature is too hot or too cold, these breezes do not occur. § 25 supports this contention, by demonstrating that if the temperature is too hot, then breezes will not blow off of rivers (and presumably lakes, though they are not discussed). I suspect that Theophrastus elaborated on this one condition (extreme heat, but not extreme cold or too much precipitation) in part because it was connected to an ancient puzzle about the Nile (more on which shortly).

Note that, judging by the surviving evidence, Theophrastus' *On Water(s)* (on which see above p. 131) devoted a fair amount of space to rivers: see 211A–B, 211D, 213A–C, 214A–B, 216, 218A–D FHS&G (with 211A, 211D, 214A–B mentioning the Nile).

ἀπὸ μόνου δὲ τοῦ Νείλου δοκοῦσιν οὐκ ἀποπνεῖν αὔραι ἢ ἐλάχισται, διότι θερμὸς ὁ τόπος καὶ ἐξ οὗ καὶ εἰς ὃν ῥεῖ· αἱ δ' αὔραι πυκνουμένου τοῦ ὑγροῦ εἰσί.

Herodotos tells us (2.19) that he wanted to discover two things about the Nile, but that the Egyptians (both the priests and others) could tell him nothing: the reason for its annual flooding, and why alone of all rivers no breezes blow from it (ὅ τι αὔρας ἀποπνεούσας μόνος πάντων ποταμῶν οὐ παρέχεται).<sup>309</sup> He turns to discussing at length the flooding of the Nile (2.20–26), and then briefly the absence of Nile breezes (2.27): In his view, breezes tend to come from cold regions, not hot ones.<sup>310</sup>

Theophrastus is concerned with the same issue, and he may originally have cast his views in contrast to Herodotus'. From this perspective, Herodotus is half right: Breezes cannot blow where temperatures are extremely hot. And Theophrastus can explain why, namely, because the moisture of which the breezes in part consist is burned off (rather than raised and condensed). But it is too simplistic to say (as Herodotus does) that breezes blow where it is cold

309 This inquiry does not seem to make sense, as breezes clearly do blow off of the Nile. Scholars of Herodotus tend to focus on the meaning of αὔρα/αὔρη in their attempts to make sense of it. See Baxendale (1994) for a lengthy analysis of this text, with an emphasis on the precise meaning of αὔρη (and with references to other scholarship). In his view, αὔρη in Herodotus refers to local mist-winds; and he translates the relevant line from Herodotus 2.19: "I enquired also why of all rivers it alone produces no local mist-winds from its surface" (1994, 453). He may well be right, but for consistency's sake, I continue to use 'breezes'.

310 τῆς αὔρης δὲ πέρι, ὅ τι οὐκ ἀποπνέει ἀπὸ τοῦ Νείλου, τήνδε ἔχω γνώμην, ὡς κάρτα ἀπὸ θερμῶν χωρέων οὐκ οἰκός ἐστι οὐδὲν ἀποπνέειν, αὔρη δὲ ἀπὸ ψυχροῦ τινος φιλέει πνέειν.



but not where it is hot. For as Theophrastus states at the end of § 25, it is still an open question whether the Nile is in fact cold in the morning—one of the conditions necessary for river breezes (see § 24). The key component, which Herodotus misses, is moisture.

The presence of *μόνου* here is a bit puzzling: Why does Theophrastus say “From the Nile *alone* breezes seem not to blow”? For he immediately goes on to say that the same thing is true for rivers in Libya, Babylon, and Susa. One might think that he is saying that among *Egyptian* rivers, breezes do not blow off of the Nile alone; but that makes no sense, as one would expect the same conditions to apply to any other Egyptian river (i.e. that the ambient temperature is extremely hot during the day). Therefore, I offer the following speculations: that Theophrastus had originally raised the puzzle in the terms found in Herodotus (cf. *μόνος πάντων ποταμῶν*); and/or that the text of the opening of § 25 was originally constructed somewhat differently, such that it said that people think (*δοκοῦσιν*) that from the Nile alone breezes do not blow (though Theophrastus usually uses *λέγεται* to convey what is held to be the case); or that the following passage (on Libya, Babylon, and Susa) was added later (by Theophrastus or someone else), when new data was discovered, but that the original *μόνου* was mistakenly not deleted.

Theophrastus says that the location of the Nile is hot, “both out of which and into which it flows.” It begins in Ethiopia (see 211A–B FHS&G) and ends in the Nile Delta. I assume this phrase was included to emphasize just how hot or scorched the Nile is: it does not begin or end cold. This may be important later when he raises the question or puzzle concerning whether this and other such rivers are cold at dawn. Theophrastus seems to accept Aristotle’s account of the source of the Nile. This is assuming we can trust what purports to be the Latin translation (by Bartholomew of Messina) of Aristotle’s work on the Nile, *De inundatione Nili*. Having rejected other accounts of the cause of the flooding of the Nile, in § 10 of this work Aristotle (if he is the author) offers his own account. It rains in Ethiopia, which is apparently where the Nile begins:

Now, there is only one cause left to explain the reported facts. This should be declared to be the cause because by now it recognisably presents no difficulty. For it has been experienced with senses, as people became eyewitnesses on the basis of what they had seen. (Rain) water is seen being produced in great abundance in Ethiopia during the season from the Dog to the Bear, while none is in wintertime.<sup>311</sup>

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311 *Nunc autem relinquitur sola causa dictorum. Hanc causam dicendum, propter quod iam*

On the nature and authenticity of *De inundatione Nili*, and much more of value, see Aubert (2014) and Beullens (2014).

διὸ καὶ οὐδὲ τῶν ἐν τῇ Λιβύῃ ποταμῶν οὐδ' ἀφ' ἐνὸς αὔραι οὐδαμῶς ἅπαντες γὰρ θερμοί. τοῦτο δὲ δῆλον, ὅτι οὐδ' ἀπὸ τῶν περὶ Βαβυλῶνα καὶ Σοῦσαν, καὶ ἄλλως πρὸς τοὺς ἐμπύρους τόπους.

This passage adds further examples illustrating the point already made about the Nile, and then concludes (based on the evidence from Egypt, Libya, Babylon, and Susa) that ‘this’ is true for all extremely hot locations. I take ‘this’ to be that there are no (or few) breezes from rivers running through extremely hot locations.

Ms. A's οὐδὲ ... οὐδ' ... οὐδαμῶς seems like overkill, and an editor might reasonably bracket οὐδὲ (with Turnebus) or οὐδ' (which Coutant omitted). Perhaps Theophrastus' point is that unlike the Nile—from which at most a few breezes blow—from the rivers in Libya absolutely no breezes blow. It is unclear into which category fall the rivers in and around Babylon and Susa (which must refer primarily to the Tigris and the Euphrates).

Three other textual issues: (1) Ms. A reads τὸν ἐν τῇ λυβύῃ ποταμόν. A second hand in the margin of ms. B, recognizing that the ἀφ' ἐνὸς that follows implies multiple rivers, emended the text accordingly (also correcting the spelling of the country, and adding one word and cutting another): ἀπὸ τῶν ἐν λιβύῃ ποταμῶν. I have accepted some of this suggestion, keeping as much of ms. A as possible and adding no new words: τῶν ἐν τῇ Λιβύῃ ποταμῶν. (2) As ‘breezes’ (plural) must be the *subject* of this sentence, Schneider's slight change of the manuscripts' αὔραν to αὔραι is necessary. (3) Although I suppose it is possible that ms. A's τοὺς ἐμπείρους τόπους means “the locations (that Theophrastus is) acquainted with,” and one can make sense of that in context, ms. B's τοὺς ἐμπύρους τόπους (‘the scorched locations’) fits perfectly, and it is language that Theophrastus uses elsewhere in *On Winds* (see § 21 and the last line of § 24).

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*non problema videtur esse: in sensum enim venit, quemadmodum per se videntes facti a visis. Videntur enim aquae factae in Aethiopia per tempora haec a Cane usque ad Arcturum multae et superabundanter, hieme autem nullae.* Text and translation, Aubert (2014)—which also includes further fragments and a brief but useful commentary.

καίτοι φασί γε θαυμαστώως καταψύχεσθαι τὸν ἀέρα πρὸς τὴν ἕω. τοῦτο μὲν οὖν ἐπισκεπτέον· τάχα γὰρ ἀποψύχεται μὲν, οὐ δύνανται δὲ πορρωτέρω[ς] προΐεναι καὶ ποιεῖν αὔραν, ἐμπύρων εὐθὺ τῶν ὑποδεχομένων ὄντων τούτων.

§ 25 ends with a relevant problem or puzzle, for which there is as yet no firm solution. (I think it possible that this material was added when the relevant *endoxon* came to light.) Steinmetz (1964, 44) thinks the problem is morning-cold in hot regions.<sup>312</sup> But I think it is slightly more complicated, and relevant, than that. The explanation Theophrastus has given for cold breezes blowing off of rivers is true only in fair weather. Since the region through which the Nile flows—from beginning to end—is extremely hot (as are the rivers in the other regions he mentions), and such heat prevents the moisture from condensing, no (or few) breezes blow off of such rivers. But if it turns out that these regions are quite cold at dawn, why doesn't this fact allow for the generation of breezes?

Before the problem can be solved sufficiently—or shown to be no problem at all—this *endoxon* must be investigated and its truth or falsehood established. In the meantime, Theophrastus suggests a provisional answer: Even if it is cool at dawn, which allows for the condensation of moisture over the river, the area around the river is so hot ('scorched', ἐμπύρων)—or perhaps quickly becomes so hot—that any vapor that does form is burned off before it can become a breeze.

Re. ἐμπύρων: I accept the reading of Turnebus, where ms. A has εὐπύρον. (See the *apparatus criticus* for other mss. readings.) According to the *TLG*, εὐπύρον does not appear earlier than the second century AD, as it first appears in Pollux 9.162, who reports that it means "rich or fertile in grain". But note that Theophrastus uses εὐπύρωτος (*CP* 1.22.5) to describe the pine tree (it is easy to burn). One could try to make a case that Pollux is wrong (or incomplete), that Theophrastus did originally write εὐπύρον, and that he meant by this something like 'easy to burn' or (in the present context) 'readily very hot'. But I think Turnebus' ἐμπύρων (which I translate 'scorched') makes much more sense. (I was tempted to accept τόπων [second hand in the margins of ms. B] over ms. A's τούτων. But the meaning of the line would be the same in either case, as τούτων implies τόπων—"those *locations*"—and so the change is unnecessary.)

<sup>312</sup> Am Ende taucht ein neues Problem auf: Morgenkühle in heißen Gegenden. Eine Lösung wird angedeutet, eine weitere Untersuchung aber für notwendig erklärt und damit das Ende der Vorlesung markiert.

### *On Winds 26*

The topic of §§ 26–28, broadly speaking, is the influence of location on the *direction* of winds, and particularly on the relationship among winds in the same location blowing in opposite directions.<sup>313</sup> § 26 is devoted specifically to what are called the alternating breezes<sup>314</sup> (which are also discussed briefly in § 53). What Theophrastus says about them is not entirely clear; but some light is shed on his discussion by *Pr.* 26.4, 5, and 40. See also Thphr. *Metars.* 13.33–42. On the beneficial effects of alternating breezes on plants, see *CP* 2.3.1.

ἀπὸ γούν τῆς ἀπογείας καὶ τῆς τοιαύτης αὔρας καὶ αἱ τροπαὶ γίνονται, συναθροισθέν-  
τος τοῦ ὑγροῦ ἀέρος· ἡ γὰρ τροπὴ καθάπερ παλιμπνόνῃ τίς ἐστι πνεύματος, ὥσπερ ἐν  
τοῖς εὐρίποις τῶν ὑγρῶν.

The offshore breeze blows from the land to the sea, and the alternating breeze “comes from” that: the moist air or vapor blown by the offshore breeze “gathers together” (more on that in the next passage), and from this collection of moist air comes the alternating breeze, which blows in the opposite direction. It is alternating because *first* the offshore breeze (or some breeze like it<sup>315</sup>) blows, and *then*, after a certain amount of time and the gathering together of moist air, the alternating breeze blows.<sup>316</sup>

The first half of *Pr.* 26.5 clarifies the relationship between these two breezes, while at the same time obscuring the nature of the alternating breezes:

Why are alternating breezes from the sea? Is it because the sea is nearby?  
Or is it because the alternating breeze is the opposite of the offshore breeze, and the alternating breeze is, so to speak, a reversal of the offshore

313 Cf. Steinmetz (1964, 44), who describes the *Vorlesungsthema* of §§ 26–28 as *Der Einfluß lokaler (topographischer) Gegebenheiten auf die Richtung des Windes*.

314 Literally ‘the turning’ breezes (αἱ τροπαί, sometimes τροπαῖαι), in the sense of turning back. Given the reciprocal relationship between αἱ ἀπόγειαί and αἱ τροπαί, and given that the former are clearly breezes (αὔραι), the latter should be viewed as breezes as well. In this connection, note in the opening of § 26: τῆς ἀπογείας καὶ τῆς τοιαύτης αὔρας καὶ αἱ τροπαὶ κτλ. (But cf. *Pr.* 26.4.940b18–19: τὰ ἀπόγεια [sc. πνεύματα?].)

315 I’m not at all clear what the τῆς τοιαύτης αὔρας refers to.

316 See Coutant & Eichenlaub (1974, 1456–1458), a section entitled “The mechanical interplay of winds,” which includes discussion of the reciprocal relationship between αἱ ἀπόγειαί and αἱ τροπαί.

breeze? Now the offshore breeze is a flow of air coming from the land towards the sea, and the alternating breeze is the flowing back of this. So it must be from the sea.<sup>317</sup>

940b21–26

The clarification comes in identifying the relationship between the two more explicitly: the alternating breeze is the opposite and a reversal of the offshore breeze. The obfuscation comes from the claim (which will have to be qualified, if it is to make sense) that the alternating breezes blow from the sea.

*Pr.* 26.4 clarifies the analogy between offshore and alternating breezes, and the ebb and flow characteristic of straits of water (ὥσπερ ἐν τοῖς εὐρίποις τῶν ὑγρῶν):

Why do alternating breezes blow? Is it for the same reason as that which makes the straits flow?<sup>318</sup> For both sea and air are carried along until they flow; then, when the offshore (breezes) encounter resistance and are no longer able to move forward because the source of their motion and course is not strong, they go back in the opposite direction.<sup>319</sup>

This passage also indicates (at least partially) the mechanics of the interplay between offshore and alternating breezes, which Theophrastus turns to in the next passage.

One textual note: There has long been dissatisfaction with ms. A's πάλιν πνοή; a second hand in ms. B sought to emend it (see the *apparatus criticus*), and the scribe of ms. S changed it further to παλιμπνόη. I have, with most editors, accepted this emendation, though I would add that ms. A's reading is not impossible.

317 Διὰ τί αἱ τροπαὶ ἐκ τῆς θαλάττης εἰσὶν; ἢ ὅτι ἡ θάλαττα πλησίον; ἢ ὅτι ἐναντίον ἐστὶ τῇ ἀπογείᾳ ἢ τροπαίᾳ, καὶ ἔστιν ἡ τροπαία οἷον ἀναστροφή ἀπογείας; ἢ δὲ ἀπογεία τὸ ἐκ τῆς γῆς πρὸς τὴν θάλατταν πνεῦμα γινόμενον, ἢ δὲ τροπαία ἡ τούτου παλῖρροια. ὥστε ἀνάγκη ἐκ θαλάττης εἶναι.

318 The author is clearly referring to flowing after ebbing, which matches alternate breezes blowing after offshore breezes blow.

319 Διὰ τί αἱ τροπαὶ πνέουσιν; ἢ διὰ τὸ αὐτὸ ὃ καὶ οἱ εὐριποὶ ρέουσιν; μέχρι γὰρ τοῦ ρεῖν καὶ ἡ θάλαττα φέρεται καὶ ὁ ἀήρ· εἴθ' ὅταν ἀντιπέσῃ καὶ μηκέτι δύνῃται τὰ ἀπόμενα προάγειν διὰ τὸ μὴ ἰσχυρὰν ἔχειν τὴν ἀρχὴν τῆς κινήσεως καὶ φορᾶς, πάλιν ἀνταποδίδωσιν.

ὅταν γὰρ ἀθροισθῇ καὶ πλήθος λάβῃ, μεταβάλλει πάλιν εἰς τὸ ἐναντίον. μάλιστα δ' ἐν τοῖς κοίλοις ταῦτα γίνεται καὶ ὅπου πνέουσιν αἱ ἀπόγειαι. τούτων δ' ἑκάτερον εὐλόγως· ἐν μὲν γὰρ τοῖς κοίλοις ὡς συναθροίζεται προσπίπτων, ἐν δὲ τοῖς ἀναπεπταμένοις διαχέεται.

The basic mechanics is indeed reasonable (εὐλόγως): the air or water (the two analogues) flow into a hollow area—i.e. an enclosed area which is such as to receive the air or water, and also contain it. And when the air or water has reached a certain volume, it flows back whence it came. So, the offshore breeze blows into a body of water that counts as a hollow (whether or in what sense the sea is a hollow must be explained), its air or vapor collects there, and at a certain point it blows back in the opposite direction as an alternating breeze.

That the sea is in fact in some sense a hollow is merely implied here; but it is explicitly referred to as such (in a certain sense) at the end of *Pr.* 26.5: “Now the cause of its not collecting on the land and of its bending back as it departs is that the sea is in a hollow; and air, like water, always flows into what is most hollow”<sup>320</sup> (940b27–29). So it sounds like it is not the sea *per se* that is or functions as a hollow, but the sea *in a hollow*, which I assume refers to a bay or harbor. *Pr.* 26.40 either represents Theophrastus’ unstated view, or it was formulated in response to just the sort of question I have raised (and/or perhaps to the view expressed in *Pr.* 26.4):

Why do alternating breezes occur where there are bays, but they do not occur where there are wide open seas?<sup>321</sup> Is it because the wind flowing into bays is not more spread out, but for the most part travels in a mass, whereas in the wide open seas the offshore breezes are more spread out straightaway from the beginning [or ‘source’], and when they flow, they experience the same thing because it is possible to move in many directions? For the alternating breeze is a bending back of an offshore breeze.<sup>322</sup>

On the mechanics at play here, cf. §§ 3, 19–20, and especially 29.

320 τοῦ δὲ μὴ εἰς τὴν γῆν τοῦτο συνίστασθαι καὶ τοῦ ἀνακάμπτειν ἀπὸν αἴτιον ὅτι ἡ θάλαττα ἐν κοίλῳ ἐστίν· ὁ δὲ ἀήρ, ὥσπερ τὸ ὕδωρ, ρεῖ αἰεὶ εἰς τὸ κοιλότατον.

321 Note the contrast between the wide open or deep sea (τὸ πέλαγος) and the sea (ἡ θάλαττα).

322 Διὰ τί οὐ μὲν κόλποι εἰσὶ, τροπαῖαι γίνονται, οὐ δὲ ἀναπεπταμένα πελάγη, οὐ γίνονται; ἢ διότι εἰς μὲν τοὺς κόλπους ῥέον οὐ διασπᾶται τὸ πνεῦμα μάλλον, ἀλλ’ ἀθρόον ἐπὶ πολὺ φέρεται, ἐν δὲ τοῖς ἀναπεπταμένοις ἐξ ἀρχῆς τε αἱ ἀπογέαι εὐθύς διασπῶνται μάλλον, καὶ ὅταν ῥέωσι, ταῦτ’ ἀσχοῦσι διὰ τὸ πολλαχῇ ἐξεῖναι ὁρμήσαι; ἔστι γὰρ ἡ τροπαία ἀπογέας ἀνάκλασις.

Two noteworthy textual issues: (1) The manuscripts' ὡς συναθροισθήσεται προσπίπτων has generally been thought to be problematic. I follow Coutant in printing συναθροίζεται (for the future passive is out of place), but for the rest preserve the manuscript reading.<sup>323</sup> (2) Re. the final δέ in this passage (the reading of Schneider, in place of the manuscripts' γάρ): the μέν in the previous clause seems to require a corresponding δέ; and in any case, δέ fits the context better than γάρ.

τῶν δ' ἀπογείων πνευμάτων ἀσθενῆς ἡ φύσις, ὥστ' οὐ δύνασθαι βιάζεσθαι πόρρω. συμβαίνει δὲ καὶ ἡ ἀνταπόδοσις ἀνὰ λόγον τοῦ τε πλῆθους καὶ τοῦ μεγέθους, ὥς ἂν αἱ ἀπόγεια πνεύσωσιν. ὁμοίως δὲ καὶ κατὰ τὰς ὥρας οἷον τὸ ὀψιαιότερον ἢ τὸ πρότερον ἐμβάλλειν αὐτάς.

This final section of §26 concerns the nature of any particular alternating breeze. This seems to be determined by three factors: (1) the nature of the offshore breeze from which it comes (i.e. its size and strength), (2) the time of day during which these breezes blow, and (3) the nature of the hollow, which determines how much moist air is collected, before the alternating breeze blows back.

Theophrastus does not elaborate on (3), which is merely implied in §26. With respect to (1), he says that offshore breezes are weak. I take that to refer to their general stature, in relation to other winds; for there is no doubt a range, some being weaker than others. This would suggest that alternating breezes tend to be weak as well. We can only speculate as to why offshore breezes are considered weak, ἀσθενῆς (cf. *Pr.* 26.4.94ob19, μὴ ἰσχυράν): As I said above (pp. 211–212, on §24), the offshore breezes, like those blowing off of rivers and lakes, would have to come from moist exhalations; but these are clearly much less abundant from land, which accounts for their weakness.<sup>324</sup> With respect to (2), it matters at what time of day the moist air that has collected turns back and blows in the other direction, I assume because (factors like cloud cover and ambient temperature aside) whether this happens when the sun is high in the sky determines the amount of moisture in the collected air, which in turn affects the force of the breeze.

323 Cf. ὁ ἀήρ ἀθροισθήσεται προσπίπτων (Turnebus) and ὅσον ἀθροίζεται προσπίπτον (Schneider 1818, 4: 694).

324 See Steinmetz (1964, 44–45) and Coutant & Eichenlaub (1975, 76).

### *On Winds 27*

§ 27 discusses the next case of location influencing the direction of winds such that they blow in the opposite direction: namely, a kind of ἀνάκλασις ('bending back') in which the wind turns back owing to high elevations. The chapter consists of three parts: a general statement describing the phenomenon; a consequence of and/or evidence for it, with an example; and, a brief explanation of the cause of this phenomenon, with further examples.

γίνεται δὲ καὶ ἀνάκλασις τις τῶν ἀνέμων ὥστ' ἀντιπνεῖν αὐτοῖς, ὅταν ὑψηλοτέροις τόποις προσπνεύσαντες ὑπερᾶραι μὴ δύνωνται.

The καί indicates that the alternating wind, discussed in § 26, was one kind of ἀνάκλασις (specifically, a turning back of offshore breezes). In § 27, he is discussing another: winds striking mountains.

In one sense, what he says is quite straightforward: in some locations, winds strike against mountains that are too high for them to flow over, and so they bend back and blow in the opposite direction. In another sense, what he says is not straightforward: blowing back in the opposite direction, "they blow against themselves". What this means—or what happens when they blow against themselves—is not clear. There is no reference to the wind clashing with itself as it turns back and blows in the opposite direction, so something else must happen. Steinmetz (1964, 45) describes the ἀνάκλασις as follows: *Ein wind stößt auf ein Gebirge, das er nicht übersteigen kann; er wird in der Höhe zurückgeworfen, so daß die oberen Luftschichten den unteren entgegenwehen*. Theophrastus does not say explicitly what is happening; but since no clash is described, it is reasonable to suppose that the wind that turns back flows *over* the incoming wind. And one might consider the movement of clouds—discussed in the other parts of § 27—as evidence of such an understanding of this kind of ἀνάκλασις.

διὸ ἐνιαχοῦ τὰ νέφη τοῖς πνεύμασιν ὑπεναντία φέρεται, καθάπερ καὶ περὶ Αἰγυαίας τῆς Μακεδονίας βορέου πνέοντος πρὸς τὸν βορέαν.

The phenomenon under discussion is being used to explain another (unusual) phenomenon: namely, clouds moving in the opposite direction of the (major?) wind. Boreas blows from the north; but apparently, near mountains in Macedonia for example, clouds are observed moving in the opposite direction *while* Boreas is blowing. It is unclear whether the existence of this kind of ἀνάκλασις is (sometimes) perceived directly, or is deduced to explain the movement of these clouds.



Schneider prints Αἰγείας, which is a convincing emendation of the manuscripts' meaningless λιγγίαις. Aegeae was an important Macedonian city, in the foothills of Mt. Pieria (see §45), though Theophrastus mentions two other mountains in the next section. I do not understand the suggestions of Bonaventura (1593, 162), λυγκεστιδιά, or Furlanus (1605, 89), λυγγίσις. Turnebus' suggestion (Λυγκέας), an alternative spelling of Λυρκείας (Lyrceia, Lyrceum), is intelligible (as Lyrceia is a city northwest of Argos), but inferior to Αἰγείας both geographically and (I think) paleographically.<sup>325</sup>

αἴτιον δ' ὅτι τῶν ὀρίων ὄντων ὑψηλῶν τῶν τε περὶ τὸν Ὀλυμπον καὶ τὴν Ὀσσαν, τὰ πνεύματα προσπίπτοντα καὶ οὐ(χ) ὑπεραίροντα τούτων ἀνακλᾶται πρὸς τοῦναντίον, ὥστε καὶ τὰ νέφη κατώτερα ὄντα φέρεται ἐναντίως. συμβαίνει δὲ καὶ αὐτὸ τοῦτο παρ' ἄλλοις.

This is an odd passage, in that although it reports what is responsible for the ἀνάκλασις around Aegeae (the hills near Olympus and Ossa), it adds nothing to what was said earlier in the chapter about this phenomenon: the cause or explanation (αἴτιον) is “the winds striking but not rising above” these mountains, which then “bend back in the opposite direction”; and thus the clouds move in the opposite direction as well. Perhaps this is merely a condensed version of what was in the original, which included more details—about the phenomenon generally or as observed around Aegeae.

Re. περὶ τὸν Ὀλυμπον καὶ τὴν Ὀσσαν, note Strabo 7a.15 (fragment): “And Olympus belongs to Macedonia, whereas Ossa and Pelion belong to Thessaly” (καὶ ἔστιν ὁ μὲν Ὀλυμπος τῆς Μακεδονίας, ἡ δὲ Ὀσσα τῆς Θεσσαλίας καὶ τὸ Πήλιον). Cf. §31, in which Theophrastus mentions the Etesians bending back from Olympus and Ossa.

Re. συμβαίνει δὲ καὶ αὐτὸ τοῦτο παρ' ἄλλοις: I take this remark to be making clear that what happens around Aegeae is not some odd occurrence—one of those marvelous things heard that the Peripatetics were interested in—but simply an example of what Theophrastus is talking about.

325 Coutant & Eichenlaub (1975, 77) locate Aegeae at Edessa, Faklaris (1994) at Kopanos (19 kilometers south of Edessa). Hammond (1970, 156–157) and (1997—a response to Faklaris) puts the location to the southeast of Kopanos at Vergina, which “lies at the northern end of the Olympus massif, which consists of the Pierian mountains and Mt. Olympus” (1997, 177). Hammond is almost certainly right (see Longrigg 1978b, 425–426, and see below, note 403); and in the later piece, he argues that *On Winds* 27 supports that location (1997, 178).

Three textual issues: (1) The marginal οὐ in ms. B is a necessary correction of ms. A's οὐ (and Aldus' οὐχ is even better). (2) Turnebus' emendation—ὑπεραίροντα τούτων for ὑπεραίρονται τούτων—is necessary, for the participle is needed to parallel προσπίπτοντα, in agreement with τὰ πνεύματα, and the plural τούτων is necessary (referring to ὑψηλῶν). (3) Wood (1894, 35 n. 32) comments: “The common reading φέρουσι, and Schneider's suggestion of φέρονται [1818, 4:694], are both wrong. It must be φέρεται.” He is right. (Note the appearance of τὰ νέφη ... φέρεται earlier in § 27.) But whereas he renders it in the passive voice (“are ... carried”), I take it to be middle (“carry themselves,” i.e. “travel”), as I did earlier in the chapter.

### *On Winds 28*

As Steinmetz describes them (1964, 45), §§ 27–28 discuss three changes in direction owing to *topographische Gegebenheiten*: ἀνάκλασις (§ 27), περίκλασις, and σχίσις (§ 28). Having considered ἀνάκλασις, we turn now to περίκλασις and σχίσις, though it should be added that of the two, much more space is devoted to the former, and Theophrastus never uses the noun σχίσις (but rather the verb σχίζειν). In both cases, it is frustratingly unclear what precisely Theophrastus is talking about.

ἐνιαχοῦ δὲ καὶ ὑπ' αὐτοῦς τοὺς ἐτησίας ἀντίπνοιαί γίνονται τῷ βορέᾳ διὰ τὴν περίκλασιν, ὥστε καὶ ἐναντιοδρομεῖν τὰ πλοῖα, καθάπερ καὶ περὶ τὸν πόρον τὸν ἐκ Χαλκίδος εἰς Ὠρωπόν, οὓς δὴ καλοῦσιν παλιμβορέας.

Steinmetz (1964, 45) takes the περίκλασις to be similar to the ἀνάκλασις, in that in both cases, a wind strikes a hill or mountain that it cannot flow over, and as a result blows in the opposite direction. The difference, as he sees it, is that in the case of the ἀνάκλασις, the reverse wind flows over the incoming wind (see above p. 222), whereas in the case of περίκλασις, the reverse wind blows back in an arc and reaches or makes contact with the incoming wind.<sup>326</sup> This is one possible interpretation, supported by the fact that the account of περίκλασις is sandwiched between accounts of ἀνάκλασις and σχίσις, both of which (seem to, in the latter case) involve wind striking hills or mountains. But note that Theophrastus does not mention mountains in connection with περίκλασις.

326 *Die περίκλασις: Eine ähnliche Erscheinung, nur wird hier der Wind im Bogen zurückgeworfen, so dass er sich in der gleichen horizontalen Ebene entgegen weht.*

Theophrastus here seems to consider the Etesians a kind of Boreas, i.e. north wind. The winds called Reverse-Boreas are, I take it, just one example of *περίκλασις*: a *bending* of the Etesians *around* the passage near Chalcis (more on this shortly). Coutant & Eichenlaub (1975, 77) comment:

The counterwinds of the Palimboreas [i.e. Reverse-Boreas] occur as the etesians are blocked by the mountains of Euboea and strong-surface heating on the west-and-south-facing slopes cause indrafts of air in opposition to the prevailing etesians. These breezes have been confirmed at 300 to 700 meters above the surface by fliers.

But this is not an interpretation of Theophrastus; rather, it is a modern account of the winds he was referring to and attempting to explain (but in a very different manner, and erroneously). For if the Etesians are turned around by the mountains of Euboea thus becoming Reverse-Boreas winds, they would not be perceived by people in and around Chalcis (which is on the other side of these mountains), nor cause the ships off the coast there to turn in the opposite direction.

I think another explanation is necessary. Chalcis lies on the Euboean side of the Euripus Strait, a very narrow strait and the narrowest point between Euboea and the mainland (less than 100 meters at the narrowest), and connecting the North and the South Euboean Gulf. The Euripus was famous in antiquity for its rapid tides reversing direction, which could no doubt explain ships running in the opposite direction (*ἐναντιοδρομεῖν τὰ πλοῖα*).<sup>327</sup> Perhaps Theophrastus thought the winds had a role in this, and/or moved in a way similar to this unusual flow of water: coming down from the north, the Etesians pass through this narrow straight and are somehow bent—not back (and over), but around, going in reverse in that sense. This bending around, therefore, would not or need not involve mountains,<sup>328</sup> as long as the land on either side of the strait formed a narrow passage through which the wind

327 See e.g. Aristotle, *Mete.* 2.8.366a22–23. On the changing Euripus tides as a metaphor for going back and forth, see Plato, *Phaedo* 90c and Aristotle, *EN* 9.7.1167b6–7. A legend arose in antiquity that Aristotle committed suicide in Euboea, because he could not explain the tidal changes of Euripus. One source (Procopius, *On the Wars* 8.6.20) says that Aristotle did not think the cause was winds. On Aristotle on the Euripus and straits generally, see Wilson (2013, 223–225). On the problem of the Euripus, in antiquity and in modern times, see Eginitis (1929).

328 Cf. Bonaventura (1593, 163): *nulli enim montes ad finem Euripi illius visuntur, a quibus recta possit Etesiarum fieri reflexio ....*

blows. (I do not know whether the Euripus meets this condition.) And this brings us to the one significant textual issue in this passage. Ms. A has *περὶ τὸν πόρρον*<sup>329</sup> *τὸν ἐκ Χαλκίδος ἰσόρροπον*. Most scholars have recognized that this last word problematic—going as far back as the second hand in the margins of ms. B (who suggested *εἰς ὠρωπόν*).<sup>330</sup> Turnebus corrected the spelling of Oropus (ὠρωπόν), and this has been accepted by editors ever since (and is surely right). Oropus is on the mainland side of the South Euboean Gulf, about 35 kilometers from Chalcis. So Theophrastus is saying that the winds bend around and ships move in the opposite direction in sailing from Chalcis to Oropus<sup>331</sup>—that is, in the South Euboean Gulf, just past the Euripus Strait.

γίνεται δὲ τοῦτο σχεδὸν ὅταν ὥσι λαμπρότατα· τότε γὰρ μάλιστα δύναται ὡς πορρωτάτω διατείνειν, ὅταν πληθὺς ᾖ τὸ ἀντικόπ(τ)ον.

Clearly, this refers to *περίκλασις*. But beyond that, it is difficult to say what Theophrastus has in mind. If Steinmetz's interpretation (described above) is correct, then perhaps Theophrastus is here specifying one of the characteristics or causes by which one can distinguish *ἀνάκλασις* and *περίκλασις*: In the case of the former, the wind strikes a mountain which it cannot flow over, and turns back and blows over the incoming wind. In the latter case, however, the wind is more vigorous, and so when it turns back it does not flow *over* the incoming wind but turns back in an arc and intersects that wind. In § 29, however, Theophrastus discusses the blowing of winds becoming more vigorous through narrow straits, and perhaps the line under discussion is looking ahead to that—in which case the line is (or originally was) elaborating (in some way) on the bending around of air as or after it blows through a narrow strait, like the Euripus. Blowing more vigorously, it can extend very far, such that it affects the movement of ships even some distance from the strait. But again, much remains unclear.

329 Corrected to *πόρον* in ms. V.

330 As Christian Wildberg pointed out to me, one can imagine that the text was read aloud to a scribe, and—as the pronunciation of *εἰς ὠρωπόν* and *ἰσόρροπον* were at the time the same—he mistakenly wrote the latter.

331 I translate *περὶ τὸν πόρον τὸν ἐκ Χαλκίδος εἰς ὠρωπόν* “on the passage from Chalcis to Oropus,” understanding *πόρον* not in its usual sense (in *On Winds*) of a geographical passage (e.g. a strait), but in the sense of a voyage—here referring specifically to the difficulty in traveling over the sea owing to the blowing of the Reverse-Boreas. See LSJ s.v. *πόρος* III: *journey, voyage* ....

One textual issue: The manuscripts' ἀντικόπον is not a word, but it can easily be emended to ἀντικόπτον (present active, suggested by Furlanus) or ἀντικοπέν (aorist passive, suggested by Turnebus). The former makes more sense.

ἐνιαχοῦ δὲ διὰ τὸ προσκόπτειν σχίζειν συνέβαινε τὸν ἄνεμον, ὥστε τὸ μὲν ἐκείσε τὸ δὲ δεῦρο [ὁ]ρεῖν, καθάπερ καὶ τὸ ὕδωρ ὑπὸ μιᾶς πηγῆς καὶ τῆς αὐτῆς ῥέον.

Steinmetz (1964, 45) does not have much to say about σχίσις, except that this phenomenon too is the result of wind striking a hill or mountain: *Der wind wird in seiner Richtung durch ein Gebirge gespalten*. This is almost certainly correct, as it is unclear what other geological formation would cause the wind to split.

As we have seen, ἀνάκλασις refers to wind bending back and blowing in the other direction; and περίκλασις refers either to wind bending back in an arc and in some way intersecting with the incoming wind, or bending not back and over but around. What more can we say about σχίσις? There seem to be two possibilities: (1) The wind strikes a hill or mountain or some other geological projection and splits, the two parts going forward in somewhat different directions. (2) The wind strikes something and splits, the two parts bending back around. (1) would seem to better fit the terse description here: ὥστε τὸ μὲν ἐκείσε τὸ δὲ δεῦρο ρεῖν (which I translate “so as to flow one part here the other there”); but (2) cannot be ruled out.

The manuscripts give us ὀρεῖν (A) or ὀρεῖν (D), both of which are impossible. Gryneus was the first to get it right, printing ῥεῖν.

### *On Winds 29*

I'm in basic agreement with Steinmetz (1964, 45), who takes the *Vorlesthema* of §§ 29–34 to be *Der Einfluß lokaler Gegebenheiten auf die Stärke des Windes*. I would add, however, that I think this set of chapters deals with the influence of location on the strength *and speed* of winds (to the extent that those can be distinguished)—and on whether any winds are present at all—and that much of § 31 at least *seems* to be out of place, given this subject.

The specific topic of § 29 is set out in the opening sentence.

ἀπλῶς δὲ οἱ τόποι πολλὰς ποιοῦσι τῶν πνευμάτων μεταβολάς, ἄλλως τε καὶ τὸ σφοδρότερα καὶ ἡρεμέστερα γίνεσθαι, καθάπερ ἐὰν διὰ στενοῦ καὶ ἀχανοῦς πνέη.

In this passage, Theophrastus indicates that although his broad topic is still the influence of (the geological features of) location on wind, the specific subject

is no longer the direction of winds, but (in the case of § 29) the influence of narrow versus open spaces on how violent or calm a wind is.

In § 3, Theophrastus writes that “the wind traveling through a narrow passage and so more intensely is colder, but also the wind traveling into the distance is more heated up and relaxed” (τὸ δὲ διὰ στενοῦ καὶ σφοδρότερος φερόμενον ψυχρότερον). In §§ 19–20, he returns to this issue, with the focus on the temperature of wind (though he seems to be referring to a different and unusual sense of “narrow passage”; see above pp. 191–193). In § 29, his last treatment of winds traveling through narrow versus open spaces, he focuses on wind traveling through a narrow passage *more vehemently*.

I assume “narrow passages” refers here (as it does in § 3, but not in §§ 19–20) to valleys, gorges, mountain passes, and (in some cases) straits.

Schneider alters the manuscripts’ μεταβολάς· ἄλλως το μεταβολάς, ἄλλας— which is accepted by Wimmer, and by Coutant (who removes the punctuation). If one accepts ἄλλας over ἄλλως, then I think it works best without punctuation: πολλὰς ... μεταβολὰς ἄλλας (“many other changes”). But there is no reason to accept Schneider’s suggestion (though I do think a comma is a better fit). The combination ἄλλως τε καὶ is common enough in Theophrastus.<sup>332</sup> And note LSJ s.v. ἄλλως: I. 3. “freq. in phrase ἄλλως τε καὶ ... *both otherwise and ..., i.e. especially, above all.*” I translate ἄλλως τε καὶ here ‘especially’ (cf. Wood, ‘particularly’), but take the implied meaning to be ‘especially (other than or setting aside the changes in direction just discussed).’

σφοδρότερον γὰρ αἰεὶ καὶ λαμπρότερον τὸ διὰ τοῦ στενοῦ καθάπερ ὕδατος ῥεῖθρον· ἐκβιάζεται γὰρ καὶ διωθεῖ μᾶλλον ἀθρόον.

Theophrastus makes the (perceptually obvious) connection between wind traveling through a narrow passage and its blowing vigorously (by implication, in contrast to calmly blowing in an open space). This is also or especially obvious in the analogous case of water traveling through a narrow passage. (He offers further perceptual evidence later in the chapter.)

The reason for this connection is that the same amount of air (or water) trying to move through a narrow passage collects in a mass, becomes more compact, and so pushes itself through, so to speak, with more force. I think the mechanism involved here is similar to or the same as the one discussed earlier to explain the motion of Boreas (see p. 109). As I did there, I again quote from Theophrastus, *Metars.* 13:

332 HP 1.1.3, 1.10.2, 7.5.2; CP 1.8.1, 1.16.10, 1.16.12, 2.15.2, 2.17.3, 2.17.4, 2.17.5, 2.18.2, 2.19.4, 4.6.7, 5.4.5, 5.17.3, 6.14.5, 6.16.7; Od. 4.41; Sens. 72; Sud. 19; Metaph. 5a28.

Whenever the air compacts at that place [i.e. east, west, south, or north] and is compressed so that there is no empty space left, the air moves from (one side to) the other since it is forced by the vacuum and carries with itself vapor from the water and the earth, so that there is no longer a vacuum.

10–14

In a similar way, a mass of air collects before and pushes into a narrow passage; and as the air on the other side of the narrow passage is less compact (i.e. emptier) the air naturally moves more vigorously to fill that space.

διὸ καὶ ἐν τοῖς ἄλλοις ἀπνοίας οὔσης, ἐν τοῖς στενοῖς αἰεὶ πνεῦμα. μέν(ειν) γὰρ ὁ ἀήρ οὐ δύναται διὰ τὸ πλῆθος· ἡ δὲ τοῦτου κίνησις ἄνεμος.

Theophrastus next argues that the point he has just made not only explains why the winds blow with greater vigor through narrow passages, it also explains why—in the same (broadly speaking) location—when no wind blows in the open spaces, it does blow through any narrow passages owing to the quantity of air amassing there. Theophrastus' claim makes sense only if “windless” does not imply that the ambient air is perfectly still. If it was, how could a quantity of air amass near the narrow passages? And indeed, there is always some movement of the ambient air.<sup>333</sup> Air naturally moves up, though that natural movement can be resisted or supplemented by other factors: e.g. heat from the sun, moisture in the air, the rise of exhalations which have not yet or never will become wind or breezes. And we can speculate that even where there is no wind, at some point the ambient air comes into contact with wind, which moves it laterally in this way or that (however gently).

My speculations here might seem to cause problems with the last line in this passage, which is in any case controversial: ἡ δὲ τοῦτου κίνησις ἄνεμος. If air is always in motion, and wind just is the movement of air (as this line seems—and often is taken—to be saying), then all air is wind, which is absurd. The greater problem, however, is that in this line Theophrastus seems to be adopting a retrograde conception of wind in direct opposition to Aristotle, who rejects the (primitive) view that wind simply is air in motion. As Steinmetz

333 See §33. I assume Theophrastus would have agreed with this line from the opening of Seneca's account of wind (NQ 5.1): *numquam aer tam immobilis est ut non in aliqua sit agitatione*. The air is calm or still in the sense that there is no wind or breeze blowing, not that the air is literally immobile. Seneca offers as evidence the seemingly random movement of dust motes, observed when the sun shines in (5.2).

comments (1964, 45–46): *Beiläufig wird die schon lange erwartete Definition des Windes erwähnt. Dabei fällt kein Wort mehr von der warmen und trockenen Anathymiasis. Stillschweigend ist Theophrast zur voraristotelischen, von Aristoteles bekämpften, Definition zurückgekehrt.* And here is Coutant & Eichenlaub (1975, 77–78): “Theophrastus is in flat contradiction to Aristotle, who denies, *Meteor.* 349a16–32 and 361a30–32, that wind is air in motion.”<sup>334</sup> But my reply—solving both problems—is that this is *not* Theophrastus’ definition of wind. (*Contra* Steinmetz, why would Theophrastus silently slip in his ‘long-awaited’ definition of wind *here*?) I assume his formal definition of wind (if he provided one) was presented in whatever work he is referring to in §1. The key to understanding this phrase is τοῦτου (“the movement of *this* is wind”): although τοῦτου is clearly referring to ὁ ἀήρ in the previous clause, I take it to refer not to ὁ ἀήρ *simpliciter*, but to ὁ ἀήρ as modified in that clause: “the air not able to stay still owing to its quantity.” That air, in contrast to the air in the otherwise “windless” location, counts as wind (broadly understood), but that is surely not meant to be the formal definition of wind, capturing the essential feature of all wind.<sup>335</sup>

Two minor corrections in ms. B must be accepted: (1) ἀπνοίας (‘windless’) for ἀπονοίας (‘madness’), and (2) μένειν (‘remain’ or ‘stand still’) for μέν.

ὄθεν καὶ ἐν τοῖς στενωποῖς ὅταν κατακλεισθῶσι καὶ συμπύσωσι λαμπροὶ πνέουσι καὶ ἐν ταῖς πύλαις, καὶ αἱ θυρίδες ἔλκουσιν αἰεὶ καὶ πνοὴν παρέχουσιν. πάντων γὰρ τούτων καὶ τῶν τοιούτων ἡ αὐτὴ καὶ μία τις ἡ εἰρημένη αἰτία.

As direct perceptual support for his claims, Theophrastus refers to gusts of air blowing through alleys and gateways, and drafts blowing through open windows and doors (and holes in walls or roofs). These are not simply analogues of winds and breezes blowing through narrow passages; they are microcosms of the phenomena Theophrastus is discussing, for they have “the same and a single explanation,” which is “the one mentioned”—i.e. the one described in the first half of §29 (cf. Thphr. *Metars.* 13.10–14, quoted above).

Re. ἐν τοῖς στενωποῖς (which I translate “in narrow alleys”): Although στενωπός is an adjective (‘narrow’), it is often treated as a substantive (LSJ s.v. 11): “mostly as Subst., στενωπός, ὁ .... *narrow passage, strait .... mountain-pass, defile .... lane, alley ....*” For this last pair, “Thphr. *Vent.* 29” is one of the examples given. This is correct: Theophrastus is referring to something on a similar scale to gates,

334 Cf. Bonaventura (1593, 163).

335 For a different (but quite plausible) attempt to reconcile Aristotle and Theophrastus here (or at least to make them less at odds), see Sharples (1998, 149–150).



doors, and windows, and thus not to mountain passes or straits of water but to narrow alleys (presumably between buildings).

The appearance of λαμπροί necessitates taking the (unstated) subject of κατακλειςθῶσι καὶ συμπέσωσι to be ἄνεμοι (“winds”), as πνεύματα—which seems to me to be a better fit—is neuter. (I assume Theophrastus is using the implied ἄνεμοι broadly to refer to any air-flow.) For as indicated, I believe Theophrastus is here referring not to winds, in the primary sense, but to similar phenomena (e.g. drafts through windows). This problem would be eliminated if λαμπροί were emended to λαμπρῶς, which I think is a real possibility on other grounds: “they blow vigorously” seems more natural than “they blow vigorous” or “vigorous ones blow.” Nevertheless, though I mention this possibility here, I thought it would be too bold to alter the reading of the manuscripts. Similarly, I think it is also possible that the αἰί (in ἔλκουσιν αἰί, ‘always draws’ [with ‘air’ the implied subject]) is a corruption of ἀέρα (so ‘draws air’). (Perhaps the αἰί earlier in the chapter contributed to the scribe’s confusion.) Windows do not *always* draw air; but when there is a draft, what is drawn is always *air*.

In the present passage, much of ms. A is illegible; thus I have relied on ms. D for the following words: αἱ θυρίδες, πάντων γάρ, and τις ἡ εἰρημένη. Further, where only συμπέ\*\*\*\*\* is legible in ms. A, ms. D has συμπέσουσι—though I accept Turnebus’ emendation συμπέσωσι, as the third person subjunctive is needed (cf. κατακλειςθῶσι). It is just possible that συμπέσωσι was the reading in ms. A.

### *On Winds 30*

In § 4, Theophrastus lists a number of attributes that are dependent on the particular wind’s distance from the location of its origin: whether it is rainy or clear, wave-like or waveless, dense or not, continuous or not, irregular or regular, and whether it is great on the one hand when it begins, or on the other when it ceases. He there elaborates on only one of these pairs (rainy or clear), and at the opening of § 5 says: “And here, that regions have elevation is not a small but a very great influence.”

§ 30 is something of a continuation of this topic, but as it applies to the broader subject of §§ 29–34: the influence of location on the strength or speed of winds and on whether any winds are present at all. Specifically, § 30 discusses the combined influence of distance from location of origin, and the existence of certain geological features (being sunken or ‘hollow’ and/or being surrounded and sheltered), on whether a particular location has winds or is windless. He seems to be particularly concerned with the various causes of windlessness.

πάλιν δ' ἔνιοι τόποι διὰ τὴν κοιλότητα καὶ διὰ τὸ περιέχεσθαι μείζουσιν, ἐγγὺς ὄντες γε ἢ ἐγγυτέρω ἑτέρων ταῖς ἀρχαῖς, ὅλως ἄπνοοι τυγχάνουσιν. οἱ δὲ πορρωτέρω πνευματώδεις, ὥσπερ καὶ περὶ Θετταλίαν καὶ Μακεδονίαν συμβαίνει κατὰ τοὺς ἐτησίαις· οὐ γὰρ πνέουσι παρ' αὐτοῖς, ὡς εἰπεῖν, ἐν δὲ ταῖς νήσοις λαμπροὶ ταῖς μακρὰν ἀπηρτημέναις.

Theophrastus begins with an obvious case: those locations which, though close to the origin of winds, are wholly windless owing to certain geological features obstructing the wind. (It is unclear whether he is implying that, all things being equal, the closer to the location of origin of a wind the stronger the wind is or simply that there is wind.) He then provides an example of one location being closer to the origin of the wind than another, with the former being windless while the latter is not: The Etesians do not blow around (some areas in?) Macedonia and Thessaly, for the above stated reasons—certain geological features block them—though these same winds *do* blow (even vigorously) “in the islands,” which are farther from the origin of the Etesians but present no such obstacles.<sup>336</sup>

Re. ὡς εἰπεῖν: Thessaly and Macedonia are the Etesians' own location “so to speak,” because the Etesians are northern winds, and Thessaly and Macedonia are northern—in relation to the rest of Greece, including the islands to which they are being compared.

In this passage I have accepted five minor emendations to ms. A. I present them here without explanation, as they seem to me to be obviously necessary: (1) πάλιν (ms. M) for πόλιν; (2) ὄντες (Turnebus) for ὄντος; (3) ἑτέρων (Turnebus) for ἕτερον; (4) ἄπνοοι (Turnebus) for ἀπόπνως; (5) ταῖς (second hand in ms. B) for τοῖς.<sup>337</sup> (Coutant omits συμβαίνει without mentioning this in his *apparatus criticus*. I assume it was simply a mistake.)

αἴτιον δὲ τὸ τὰς χώρας κοίλας καὶ ἐπισκεπεῖς εἶναι, ταῖς δὲ νήσοις οὐκ ἐπιπροσθίεται ἡ φορά.

This line states the obvious, except that it also specifies what the obstacle is (in the example of the regions around Macedonia and Thessaly just referred to). In § 27, Theophrastus mentions Macedonia and Thessaly (Olympus and Ossa)

336 It is not clear which islands Theophrastus is referring to. I think there are two possibilities: the Northern or Thessalian Sporades, an archipelago to the east of the southeastern tip of Thessaly and north of Euboea; or perhaps, much further south, the Cyclades.

337 The reading in ms. A (τοῖς) is most likely the result of the scribe forgetting that νήσοις is feminine.

in providing examples of mountains over which the winds cannot blow and so turn back. The sunkenness or hollows of the land (τὴν κοιλότητα, τὰς χώρας κοίλας) referred to in § 30 are low areas sheltered from the wind by these same mountains over which the winds cannot blow. I would not assume these are valleys, however, through which winds often blow.

Two textual issues concerning οὐκ ἐπιπροσθίται ἡ φορά: (1) I have emended the manuscripts' οὐδ' to οὐκ, as I cannot make sense of δέ in this position in the line.<sup>338</sup> (Turnebus objected to it as well, instead suggesting a change to οὐδέν.) (2) Where there is a lacuna in ms. A—ἐπιπροσθεν (*lac. 7 litt.*) ἡ φορά—I have accepted Bonaventura's (1593, 163–164) suggestion (though he leaves οὐδ' intact): ἐπιπροσθίται ἡ φορά. The only attempt I know of to genuinely fill the lacuna (though it goes well beyond seven letters) is Furlanus' οὐδ' ἐπιπροσθεν <καὶ οὐ κωλύεται> ἡ φορά (1605, 90), which does not work as well Bonaventura's suggestion (though it produces basically the same meaning).<sup>339</sup>

κωλύονται δὲ καὶ οὗτοι καὶ ὅλως πᾶς ἄνεμος πνεῖν ἢ διὰ τὴν ἀπόστασιν—οὐ γὰρ δύνανται διατείνειν εἰς τὸ πορρωτέρω διὰ τὸ μῆκος—ἢ δι' ἐπιπρόσθεσιν τινων ἢ τρίτον εἰ τὸ πνεῦμα ἐγγύριον ἀντιπνεῖ καὶ κρατεῖ.

Theophrastus ends § 30 with a list of the three ways in which winds are prevented from blowing:<sup>340</sup> (1) by distance, (2) by an obstruction, and (3) by a counter-flow of air. This list seems out of place here, and I suspect it either once belonged somewhere else or otherwise reflects the unfinished state of *On Winds*. For one would expect such a general list (ὅλως πᾶς ἄνεμος) of causes to come at the beginning or at the end of a formal discussion of what prevents winds from continuing to blow. But as it stands, this list follows Theophrastus' formal discussion of (2) only. (3) likely refers to (or includes) the discussion of offshore and alternating breezes in §§ 26–28 (and see also §§ 52–55). There is no discussion of (1), though Theophrastus is likely referring to winds simply coming to an end (on which see p. 134 above). Now (1) might seem to involve an equivocation on “prevented from blowing” (κωλύονται ... πνεῖν): for nothing (neither geological formation nor counter-flow of air) is said to prevent the wind from blowing; rather, I assume the wind in this case eventually dies out on its own, having traveled as far as it could without being obstructed. Coutant & Eichenlaub (1975, 78) believe this item on the list runs into a contradiction: “The

338 David Sider and Christian Wildberg both independently suggested this emendation to me.

339 Turnebus emends to ἐπιπροσθεν τῇ φορᾷ, Schneider prints ἐπιπροσθεν τῆς φορᾶς, Gigon ἐπιπροσθεῖν (*lac.*) τῇ φορᾷ.

340 See Steinmetz (1964, 46), who says this is *ein Beispiel für den Pluralismus der Ursachen*.

concept of a wind running out of energy seems to be opposed to the concept of the steam gathering in from tributaries as it proceeds, Section 7.” But I think this is mistaken. Aside from the fact that I would not describe the content of § 7 this way, it is in no way contradictory to say of a particular wind that it builds up speed and/or accumulates moisture as it proceeds, *and* that there is a limit to how far it can travel (based on its origin, speed and strength, water-content, etc.). And although Theophrastus does not specify an obstacle, perhaps in the case of (1) he believes friction with the air through which the wind travels is the obstacle.

A couple of textual comments: First, I think the second hand in ms. B was right to change ms. A's εἰ δ' to ἦ δ' (which parallels the previous ἦ διὰ) and ἦ τὸ to εἰ τὸ (as the ἦ makes no sense, the scribe's eye probably having wandered to a previous ἦ—there are three).<sup>341</sup> Second, there is no need to accept Turnebus' minor emendation of ἐπιπρόσθειςιν to ἐπιπρόσθησιν, as the former is only slightly rarer than the latter, they basically mean the same thing, and there is a Peripatetic precedent for ἐπιπρόσθειςιν ([Arist.] *MXG* 977a4–5). I do, however, accept Turnebus' change in accentuation: ἐπιπρόσθεσιν τινῶν for ἐπιπρόσθειςιν τινῶν.

### *On Winds 31*

Steinmetz takes § 31 to be an illustration or explanation of the third way in which winds are prevented from blowing, namely, by a counter-flow (1964, 46).<sup>342</sup> Although such an illustration or explanation would fit perfectly here, this is not in fact what we find in § 31, as there is no mention of winds clashing, with one wind stopping another. Perhaps there was once a brief example—now missing—of one wind preventing another from blowing, and that it was followed by what is now § 31: a warning to those investigating winds of the importance of distinguishing coincidence from causality. Or perhaps it was (also) originally a puzzle (like the one in §§ 33–34), involving a supposed relationship between the Etesians and the alternating breezes blowing in Macedonia.

<sup>341</sup> I was tempted to follow Turnebus and further emend εἰ τὸ to εἴ τι.

<sup>342</sup> *Der letztgenannte Grund* [i.e. (3) on the above list] *wird am Beispiel der Wechselwinde, die in Makedonien den Etesien entgegenwehen, verdeutlicht.*

ὅτε δὲ συμβαίνει κατὰ τὴν ὥραν τοὺς ἐτησίας ἐπαίρεσθαι καὶ τὴν τροπαίαν πνεῖν περὶ Μακεδονίαν ὥσπερ σύμπτωμα θετέον.

For Steinmetz's interpretation to be correct, these winds (the Etesians and the alternating breezes) would have to clash, such that the one prevents the other from blowing. There is however no mention of this in § 31. Perhaps it was a widely held belief around Macedonia that the Etesians prevented offshore breezes from blowing, causing them to bend back and become alternating breezes, and/or that the Etesians were caused by the bending back (ἀνάκλασις) of winds owing to nearby mountains, and Theophrastus here wanted to point out that what appeared to be causal relationships were merely temporal, which is to say coincidental.

As far as I can tell, Theophrastus is here discussing one wind beginning to blow at around the same time, coincidentally, that another stops blowing or reverses direction; and so the key issue is the importance of being cognizant of the possibility of coincidence in the study of wind, and avoiding the post hoc fallacy (mistaking temporal contiguity for causality). The lack of an explicit (or obvious) mention in § 31 of one wind preventing another from blowing supports this reading.

Wood renders κατὰ τὴν ὥραν "simultaneously at a particular time," and Coutant "at the same time." Although these are pretty much what this phrase turns out to mean here, namely that the Etesians and the alternating breezes blow at the same time (and in the same place, around Macedonia), I translate κατὰ τὴν ὥραν "in its season," as Theophrastus is surely referring to the specific season of the Etesians. On the period during which the Etesians blow every year, see above p. 127. (The Etesians are discussed in §§ 10–14.) On κατὰ τὴν ὥραν, cf. § 1 (καθ' ὥραν) and (in connection with the Etesians) § 11 (διὰ τί ... ταύτην τὴν ὥραν ... πνέουσι). Cf. also συμβαίνει δὲ κατὰ τὸν αὐτὸν καιρὸν later in § 31.

A word is in order here about ὥσπερ σύμπτωμα, which I under-translate "a coincidence." A more literal rendering would be "just as a chance occurrence/encounter" (cf. Coutant's "as a chance occurrence"). In any case, that it means coincidence is clear. In discussing the idea that dreams might be a means of divination, Aristotle describes the 'candidate' relationships between dreams and what they are thought to predict as follows: "the dreams must be either causes or signs of what comes to be or coincidences" (ἀνάγκη ... τὰ ἐνύπνια ἢ αἵτια εἶναι ἢ σημεῖα τῶν γινομένων ἢ συμπτώματα, *Div.Somn.* 462b26–28). Coincidence is clearly contrary to causality, and thus Wood's translation of ὥσπερ σύμπτωμα ("as due to some connecting cause") is not only inaccurate but conveys a meaning opposite to the one intended.

On Macedonia, see §§ 27 & 30.

There is one noteworthy textual issue: Schneider, in his edition of the text, prints ὅτι in place of the manuscripts' ὅτε (offering no explanation in his three sets of notes on this work). He is followed by Wimmer and Coutant (and by Wood in his translation). But even if ὅτι is smoother, one ought to retain ὅτε: aside from being the reading of ms. A, I think it also better fits § 31's emphasis on coincidence: "*Whenever ... the Etesians happen to rise*" etc. (cf. Furlanus' *Verum si quando accidit*).

πανταχοῦ γὰρ τῆς μεσημβρίας ἀπολήγει τὰ πνεύματα διὰ τὸν ἥλιον, ἅμα δὲ τῇ δείλῃ πάλιν αἵρεται. συμβαίνει δὲ κατὰ τὸν αὐτὸν καιρὸν τὴν τε τροπαίαν πρὸς ταῖς ἀπογείαις αὖραις καὶ τοὺς ἐτησίας ἐπαίρεσθαι πάλιν· οὐ γὰρ δὴ τὴν ἀνάκλασιν τῆς ἀπὸ τοῦ Ὀλύμπου καὶ τῆς Ὀσσης τῶν ἐτησίων αἰτιατέον.

I translate the first γὰρ with "indeed" rather than "for," because this line does not seem to support the preceding line directly. Rather, this general description of winds everywhere—that they tend to cease at noon and rise again in the afternoon (owing to the sun)—is applied (in the second line) to the two winds just mentioned (the Etesians and the alternating breezes).

On the daily cycle of winds, which is basically the same everywhere, see § 18 and my commentary on it (pp. 186–189). On the sun as a primary cause of the winds, see §§ 11–12 & 15–19.

So, there is generally a lull in any winds around noon, and then they pick up again in the afternoon. This is "the same occasion" on which both the alternating breezes blow (against the offshore breezes) *and* the Etesians blow *again* (πάλιν, i.e. after the midday calm). See Coutant & Eichenlaub (1975, 78). But there is no causal relationship between the two: e.g. the Etesians causing certain offshore breezes to reverse and become alternating breezes.

Theophrastus seems to imply that if alternating breezes blowing at the same time as the Etesians were not a coincidence, then the Etesians would have to be the result of winds bending back owing to encountering mountain ranges that they cannot blow over, and this is absurd. Mountains nowhere feature in Theophrastus' earlier discussion of the Etesians (§§ 11.82–12) nor of the offshore and alternating breezes (§§ 24 & 26).

I suspect this is a remnant of a longer passage stating that one must reject the view (held in or about this region) that the Etesians prevent offshore breezes from blowing (thus making them bend back and become alternating breezes) *and* that the Etesians are caused by the bending back of winds owing to nearby mountains. If Theophrastus did not mention the former (which would be an apparent example of the prevention of wind blowing by counter-flow), then I cannot see how § 31 connects to § 30 and the list with which it ends.

On Olympus and Ossa, see § 27.

One ought to accept the Aldine's πρὸς for ms. A's πρὶν, as the alternating breezes can blow *against* or *in relation to* the offshore breezes, but not *before* them.

† ἢν μὴ ἐρμηνεύουσιν ἢ μέτριοι παντελῶς†

I print (between daggers) these words as found in ms. A. I suspect it was once a gloss that was subsequently mangled beyond intelligibility after being incorporated into the text itself. In any case, it cannot (as it is generally taken to do) qualify the preceding line, for there can be no conditions under which (ἢν μὴ, 'unless') one should consider ἀνάκλασις to be the cause of the Etesians.

One can nevertheless try to make some sense of this line, even as a gloss (or remnant of a text which can no longer be integrated into its context). The first and easiest problem to clear up is the ἢ: In ms. D this is changed to οἱ (to go with μέτριοι, "the moderate ones/men"), which we find in all other mss. and in every edition from the Aldine to Heinsius. If we accept this reading, and change ἐρμηνεύουσιν to ἐρμηνεύωσιν (as ἢν requires the subjunctive), then the line would mean "unless the moderate ones/men explained [this?] completely"—and that does not make sense. A strategy closer to ms. A is to read ἢ for ἢ: Schneider printed ἢ, which he mistakenly took to be the reading of ms. A (see 1821, 5: 160). This reading was accepted by Wimmer and Coutant (in conjunction with other changes).

Now this corrupt text<sup>343</sup> may well be lacunose; but Wimmer's suggestion—merely marking a lacuna before ἐρμηνεύουσιν—does little to clarify things. He seems to have been aware of this, for in his translation he ignores ἐρμηνεύουσιν: *nisi \* prorsus mediocres*.

I turn now to ἐρμηνεύουσιν/ἐρμηνεύωσιν. If ἢν μὴ ἐρμηνεύωσιν ("unless they explain") is correct—either going back to Theophrastus or to the author of a marginal comment—then its connection to ἢ/οἱ μέτριοι παντελῶς (and its sense) has been lost. The only plausible attempt to emend ἐρμηνεύουσιν is Coray's ἡρεμαῖοι ὦσιν (reported in Schneider 1821, 5: 160), which yields: "unless they are calm or completely moderate."<sup>344</sup> Yet it makes little sense to say: "surely one must not give as the cause of the Etesians the bending back of the breeze from Olympus and Ossa, *unless they are calm or completely moderate*." But some scribe or scholar may have thought otherwise, and jotted down

343 Furlanus (1605, 91): *corruptum ... manifestum*.

344 Cf. Coutant: "if they are not becalmed or are quite moderate."

this qualification in the margins of a now lost manuscript. Or more likely, the gloss was originally intended for some other passage, and got misplaced. For instance (and this is pure speculation), in §30, Theophrastus says that some locations, though they are close to the origin of winds, are completely without wind because they are sunken and/or surrounded by higher ground. Perhaps the gloss in question was meant to modify the completely without wind.

τὰ μὲν οὖν συμπτώματα πειρατέον ἅπασι διαιρεῖν.

Depending on how one interprets § 31, this closing line is either a parenthetical remark reminding the reader of the importance of coincidence in the study of winds, or a sentence summarizing the main point of § 31.

On the μὲν in this line, see below (p. 239).

### *On Winds 32*

§§ 32–34 form a sub-unit—discussing (and explaining) a problem or paradox—within §§ 29–34 (on the influence of location on wind speed or on whether any winds blow at all).<sup>345</sup> Together they consist of a statement of the paradox (in § 32); three examples of the phenomena (two in § 32, one in § 33); and, an explanation of the phenomenon (in §§ 33–34).

ἐκεῖνο δ' ἂν δόξειεν ἄτοπον καὶ παράλογον εἶναι· διὰ τί τῶν ὑψηλῶν τόπων τὰ μὲν προσήνεμα πάντα ἀπνεύματα τυγχάνει, τὰ δ' ἐπισκεπὴ πνευματώδη καὶ οὐ μετρίως ἀλλὰ σφοδρῶς.

This is a statement of the problem or puzzle—what *seems* contrary to reason: That *all* (πάντα) the elevated places facing the wind directly are windless or still (ἀπνεύματα), whereas (all or some of?) the elevated places that are sheltered from the wind experience violent winds.<sup>346</sup>

345 Steinmetz, describing §§ 32–33 (1964, 46), writes: *Die Besprechung der folgenden Paradoxa könnte man als eine eigene Vorlesung ansehen*. I agree with that, but then he adds: *Sie stehen aber in engem Zusammenhang mit dem Problem des Einflusses lokaler Gegebenheiten auf die Windrichtung*. I do not think the paradox concerns wind direction essentially, as much as it does the strength of wind and why (in some cases) wind does not blow at all.

346 Steinmetz (1964, 46): *Die einem Wind entgegenstehende Bergseite hat Windstille, während die geschützte Seite bedrängt wird ....*



It is not entirely clear to me why the opening of this line is connected to the previous one through a μέν—δέ construction. Perhaps Theophrastus is saying: on the one hand, it is important to keep in mind that what might seem to be causally connected is in fact a coincidence; on the other, it is also necessary to explain the causal connection involved in phenomena for which at first there would seem to be no causal connection or no possible explanation.

οἶον ἐν Πλαταιαῖς τῆς Βοιωτίας, κειμέναις πρὸς τὸν βορέαν, ὁ μὲν βορέας εὐδαινός ὁ δὲ νότος μέγας καὶ χειμερινὸς καὶ ἐπιπροσθούντος τοῦ Κιθαιρώνος.

Theophrastus presents the first of three examples of the paradox he will shortly explain: Plataea faces Boreas—that is, it is unprotected to the north—and yet Boreas blows calmly there (though it does blow). But to the south, where Mt. Cithaeron stands before Plataea, Notos is powerful (and stormy).

Coutant & Eichenlaub (1975, 78–79) attempt to explain what might in fact account for this (an explanation different from the one Theophrastus provides in § 33):

Plataea is at an elevation of about 500 meters on the north slope of Mt. Cithaeron (1400 meters). Mountains to the north may block off the north winds. Plataea may be subjected to fallwinds when the scirocco blows,<sup>347</sup> which may become very strong on the leeward (north) slopes of Mt. Cithaeron.

Of course, if Theophrastus thought that mountains to the north blocked Boreas, that would eliminate half of the paradox.

The manuscripts' κειμένης modifies Βοιωτίας; but it does not really make sense (or is beside the point) to say that Boeotia lies facing Boreas. So I accept (with editors since Furlanus) Turnebus' emendation κειμέναις (in the margins of Vascosanus, which prints κειμένοις), which modifies Πλαταιαῖς.

347 The sirocco is a Mediterranean wind originating in the Sahara; it can reach very high speeds. The online glossary of the *American Meteorological Society* defines 'fall wind' as "A wind that accelerates as it moves downslope because of its low temperature and greater density. A fall wind is a larger-scale phenomenon than the individual-slope scale and is produced by accumulated cold air spilling down a slope or over a mountain range." ([http://glossary.ametsoc.org/wiki/Fall\\_wind](http://glossary.ametsoc.org/wiki/Fall_wind))

καὶ πάλιν παρὰ μὲν τὰ κοῖλα τῆς Εὐβοίας ὑπὸ τοὺς ἐτησίας τροπαῖαι παραθέουσιν, ἐν Καρύστῳ δὲ τηλικούτοι πνέουσιν ὥστε ἐξαίσιον εἶναι μέγεθος.

The opening words (καὶ πάλιν) indicate that this is meant as another example of the same paradoxical phenomenon, and it is. Despite the hollows of Euboea being unprotected, certain winds (namely, alternating breezes) run alongside them (παρὰ ... παραθέουσιν, perhaps even suggesting such breezes bypass these hollows). The winds blow extraordinarily hard in Carystus, however, despite the fact (unstated here) that Carystus would seem to be protected by mountains. Coutant & Eichenlaub (1975, 79) explain: “Carystus in Euboea is located at the extreme south-east tip, protected by mountains (Ikji Oros, 1398 meters) to the north and east.”<sup>348</sup> Strong winds, presumably from the north (Boreas and Etesian), blow violently there, despite there being a mountain to the north that one would expect to block them.

Re. ὑπὸ τοὺς ἐτησίας: First, the article: The manuscripts have τῆς ἐτησίας, which I think is the result of scribal error: taking ἐτησίας to be the feminine genitive singular of ὁ ἐτήσιος—which it can be, but is not in the present context. Here, ἐτησίας must be the plural accusative of οἱ ἐτήσιοι. Thus, Turnebus was right to emend τῆς to τοὺς. Second, the preposition: Basically, ὑπὸ with the accusative can mean ‘below’ (referring to position or motion) or ‘during’ (referring to time). Cf. Steinmetz’s *unterhalb* (1964, 46) and Coutant’s “at the time of”; Wood’s “before” is incorrect. So one could interpret this line to mean either “alternating breezes run past the hollows of Euboea *at the time of* the Etesians” or “... *below* the Etesians.” I prefer the former, given the recent discussion (in §31) of the coincidence of the Etesians and the alternating breezes blowing at the same time.

Turnebus emended the manuscripts’ τηλικούτοι to τηλικαῦται, which is a wise move if one thinks the word is supposed to modify τροπαῖαι (the alternating breezes). I think the manuscript reading is correct, however: Although grammatically we expect the unstated subject of πνέουσιν to be τροπαῖαι, in fact it makes more sense to think that the subject is an implied οἱ ἐτήσιοι or οἱ ἄνεμοι, which subject requires and is supported by the manuscript reading τηλικούτοι. In my translation, I insert “(winds)” to indicate the shift in subject.

348 They add: “The location is such that strong sea breezes in conjunction with valley breezes occur.”

*On Winds 33*

Theophrastus presents the third example of the paradoxical phenomenon under consideration (that elevated places facing the wind directly are windless, whereas those that are sheltered experience strong winds), and then explains this phenomenon. Unfortunately, the text is so corrupt at places that it is not always clear what precisely the example and his explanation are.

ἔτι δὲ τῆς Κουριάδος ἐν τῷ καλουμένῳ Φαι(lac. 8 litt.) κειμένῳ πρὸς νότον ὑψηλῷ καὶ ἀποτόμῳ, θαυμαστόν τι κύμα μὲν εἰσπίπτει, πνεῦμα δ' οὐκ ἔστιν·

As an example of the relevant phenomenon, this passage is clear enough: there is an elevated place in southern Cyprus that lies facing the south, unprotected, and yet it is windless. Moreover, there is evidence that winds are blowing toward it: for below can be seen “marvelous” waves, which Theophrastus clearly takes to be the product of winds.

There was a city near the southernmost promontory of Cyprus called Kou-  
rion (or Curias or Curium), so that fits and creates no interpretive problems. But the name of the particular area or village or elevation that Theophrastus seems to have specified cannot be identified with any confidence. Ms. A is lacunose: ἐν τῷ καλουμένῳ φαι (lac. 8 litt.) κειμένῳ κτλ. Coutant's Φαι(στῷ τῷ) (expanding on Schneider's Φαι(στῷ)) is a good guess; but I have not been able to find any evidence of a city or region or mountain *in Cyprus* called ‘Phaistos’ (the name of course of a well-known city in southern Crete). So in my translation I simply transliterate the letters (*Phai*) and mark a lacuna.<sup>349</sup>

Re. κύμα: Though this is singular and I translate it such, it does have a collective sense (and so could be rendered “waves”). It parallels πνεῦμα in the next phrase. See my discussion of κύματος in § 53 (p. 324).

ἀλλὰ καὶ τὰ πλοῖα προσορμίζονται τοῖς λειωτοῖς, ἀλιμένων ὄντων τῶν τόπων καὶ οὐδέποτ' [οὐδὲ τὰ πλοῖα προσορμίζοντα τοῖς λειωτοῖς ἀλειμένων] (...) πλήσια καὶ τὰ συμβαίνοντα θεωρεῖν ἐστίν.

The scribe in ms. A wrote the following words twice (verbatim): τὰ πλοῖα προσορμίζοντα τοῖς λειωτοῖς ἀλειμένων. This no doubt involved or caused or

349 Gigon did the same. Cf. Coutant & Eichenlaub (1975, 79), who confidently write: “Phaestus is on the southernmost promontory of Cyprus called today Akrotiri.” (Furlanus’ suggestion [1605, 92] in *Fello* [= Φελλῷ, ‘Corkland’] names a city that so far as I know does not exist outside the satire of Lucian [see *VH* 2.4].)

indicates further corruption of the text after οὐδέποτ' and up to at least πλήσια. I do not think it is possible to recover the original text and I find the corruption too profound to warrant any attempts at emendation, aside from the bracketing I impose on the text and minor corrections to a couple of words.<sup>350</sup>

I cannot make sense of the details of this passage, though I assume it is meant to provide directly observable support (τὰ συμβαίνοντα θεωρεῖν ἐστίν) for the previous passage. As we have seen, the relevant location is an elevation, sheer and high, directly on the sea. Thus there is no harbor. Ships are nevertheless anchored there, and these provide additional means to observe the phenomenon being discussed. Perhaps the point is that these ships lie right off the coast, in areas that are smooth (the shallows?), indicating no wind at sea level as well, though they also make more visible the marvelous wave mentioned in the previous passage.<sup>351</sup>

αἴτιον δὲ τοῦ μὲν μὴ διακνεῖσθαι τὸ πνεῦμα πρὸς τὴν γῆν τὸ μὴ ὑπάγειν τὸν ἀέρα μηδὲ  
ρεῖν, ὅπερ συμβαίνει διὰ τὸ ὕψος πρὸς [κα](*lac. 8 litt.*) οὐχ ὑπεραίρων.

Wood (1894, 38 n. 40) comments: "This passage again is mutilated; but the sense is fairly clear."<sup>352</sup> I think that's half right: the passage is mutilated. We can, however, merely guess at its meaning.

The first interpretive issue is whether this passage was meant to describe the cause of all three examples of the phenomena under discussion—and so explain that phenomenon itself—or simply the cause in the third case, concerning the southern promontory of Cyprus. Coutant & Eichenlaub (1975, 79) take it to be doing the latter: "Theophrastus believed that the promontory was protected by a buffer of air and consequently the wind responsible for the wave was prevented from reaching the shore."<sup>353</sup> Steinmetz (1964, 46) by contrast thinks this passage and what follows explain all three examples (he treats the first two as examples of one phenomenon and the third as an example of another, related phenomenon), and moreover he finds in this explanation something essential to Theophrastus' theory of wind generally: *Die Erklärung der beiden letztgenannten Phänomene kennzeichnet wiederum Methode und Lehre Theophrasts*. (This is followed by his translation of the remainder of § 33, beginning with αἴτιον δέ, though he does little to clarify

350 Where I print (...) πλήσια καὶ τὰ συμβαίνοντα (everything but the lacuna is from ms. A), Gigon conjectures (ταῦτα μὲν καὶ τὰ παρα)πλήσια ἐκ τῶν συμβαινόντων κτλ.

351 Cf. Steinmetz (1964, 46): ... in *Phaistos herrscht Windstille bei bewegter See*.

352 Cf. Steinmetz (1964, 47).

353 See also Wood (1894, 38 n. 40).

Theophrastus' explanation further.) I am inclined to agree with Steinmetz. I think Coutant & Eichenlaub's interpretation is a good one, but applied to all three cases (I assume in a way that would have been clear had the passage not been mutilated).

Theophrastus seems to be saying that wherever an unobstructed elevation is facing a wind, although it seems to be unprotected it is in fact protected by a buffer of air (as Coutant & Eichenlaub call it), which "does not yield or flow away (μὴ ὑπάγειν ... μὴδὲ ῥεῖν)." One challenge for such a reading is to reconcile it with the rest of this chapter, which later says that "the air" must always or continually withdraw. More on that in due course.

Re. μὴδὲ ῥεῖν: The mss. have μὴ δέρειν ('does not flay or beat'), which is an obvious mistake, first corrected by Turnebus. Furlanus' emended μὴδὲ ῥεῖν to μὴδ' αἶρειν ("does not rise"), perhaps because he thought μὴ ὑπάγειν and μὴδὲ ῥεῖν were redundant. If ὑπάγειν ("to yield") was meant to be roughly the same as ὑπεξάγειν ("to withdraw")—forms of which appear twice in the remainder of this chapter—there might be something to this. (I say a bit more about this in the next section.) That is, perhaps μὴδὲ ῥεῖν was originally a marginal gloss (μὴ ῥεῖν) meant to explain μὴ ὑπάγειν. But there's no reason to assume that: perhaps the one is meant to refer to air moving upwards, the other to air flowing sideways. Much is unclear.

There are two textual problems in this passage, which are an obstacle to full comprehension: (1) I leave the lacuna in the text, bracketing the freestanding κα (which I ignore in my translation). The best attempt at making sense of this corrupt text is Schneider's προσκό(πτων γάρ) (1818, 4: 697), adopted by Gigon, or (based thereupon) Coutant's προσκό(πτει γάρ): "(for striking) against" or "(for it (the wind?) strikes) against" (presumably, the buffer of air). I do not think much of the other suggestions.<sup>354</sup> (2) Ms. A's οὐχὶ περρίρω makes no sense (περρίρω is not a word). Ms. V<sup>a</sup> adds two letters, correcting it to οὐχὶ περραιτέρω ("not any further"); but there are no instances of this combination earlier than the Byzantine period, and I would have expected οὐ. I think the Aldine's οὐχ ὑπερρίρων ("not surmounting") is much more likely, and relatively close paleographically (changing one letter [υ for ι] and adding a nu to the end). Separated as it is from the rest of the line by a lacuna, it is difficult to know what precisely Theophrastus was referring to (if this is what he wrote). If one combines this with the Schneider-Coutant lacuna-replacement, the sense of the whole line would be something like: "for (the wind) strikes against (the

354 πρὸσω (Turnebus), πρόσσω (Bonaventura 1593, 166), πρὸς κάτω (Furlanus 1605, 92), πρὸς κ' (στάδια) (Steinmetz 1964, 47 n. 1).

buffer of air) but does not surmount it” (cf. Coutant’s translation). That may be what Theophrastus intended, though the remainder of § 33 leads me to believe this is unlikely.

ἔτι δ’ ὑπεξάγειν αἶρ δέει, καὶ μὴ ἴσασθαι τὸν ἄερα φανερόν.

There seems to be a tension, if not an outright contradiction, between this line and the previous passage: There, he said the air (τὸν ἄερα) neither yields (ὑπάγειν) nor flows; here, he says it is obvious that the air (τὸν ἄερα) must always or continuously withdraw (ὑπεξάγειν). One might think (or hope) that a reconciliation is possible by finding different meanings in the key verbs: ὑπάγειν and ὑπεξάγειν; but I cannot see how. I assume both verbs are intransitive. For the intransitives of both, LSJ gives: s.v. ὑπάγω, *go away, withdraw, retire*; and, s.v. ὑπεξάγω, *withdraw, retire slowly*, adding “of air, sound, and the like, *escape*, *Arist. Pr.* 883a5, *Aud.* 804a19.” And the translators of *On Winds* have seen little difference between them: Wimmer (*decedit* and *cedere* respectively); Wood (“give place” and “move away”); Steinmetz (1964, 47) (*entweichen* and *entweichen*); Coutant (“withdraw” and “recede”). I render them “yield” and “withdraw”.

I think the only way to solve this problem (though much remains speculative, owing to the general state of § 33) is to take the two instances of τὸν ἄερα in two different ways: in the previous passage, it refers to the buffer of air that prevents a wind from penetrating through to the land; in the present line, however, it refers to the flow of air that fails to reach the land: that air must flow somewhere, as is explained in the next passage.

Re. ἔτι (the opening word of this passage): I print and translate the reading of ms. A, though the suggestion or correction by a second hand in the margin of ms. B (ἔτι)—adopted by three later manuscripts and by all editors—may well be right. So far as I can tell, neither reading is more helpful than the other with respect to fixing the above mentioned tension or contradiction.

ἐν γὰρ τοῖς οἰκίμασιν, εἰ τις ἂν κατακλείσῃ τὰς θύρας ἦττον διὰ θυρίδων ἢ πνοὴ φέρεται. πληρὲς γὰρ ὃν καὶ μὴ ὑπεξάγον, οὐκ εἰσδέχεται τὸν ἔξωθεν ἄερα.

Theophrastus here relies on an easily perceivable phenomenon as an analogy to help explain the paradoxical phenomenon under consideration: drafts of air through houses with open windows or doors, and what it is that stops such drafts. (He makes use of the same sort of analogy in § 29.)

This passage supports my interpretation: There are two kinds of air—inside and outside—the one not moving (under certain conditions) and the other

necessarily moving. The above mentioned buffer of air, which prevents wind from reaching elevated land, is like air in a house with doors and windows closed. The mountain or hill or cliff is like the wall in a house, with its window closed: It traps the air, preventing the outside air (the wind) from pushing that air out and itself entering.

It is easy to poke holes in this analogy. For instance, how does a mountainside trap air rather than divert it or cause it to reverse? I think it likely that only certain kinds of elevations are thought to cause the air to be trapped; but such a specification is nowhere provided.

πρὸς γὰρ τὸ κενὸν ἢ φορὰ· διὸ καὶ τὸ ἔλκειν οὐ καλῶς λέγεται.

Theophrastus is once again relying on the mechanism of movement toward a void or empty space to explain the flow of air in a particular context. I discuss this mechanism at length, including what is meant by τὸ κενόν, in connection with § 2. See pp. 109–111.

I assume ἔλκειν and cognates are usual ways of expressing the *drawing* of air, i.e. a draft. But this is not well (or accurately) said, according to Theophrastus, because what in fact accounts for a draft in a house (or the wind-phenomenon he is here describing) is not the drawing out, but the pushing out, of air (and the prevention of such pushing).

### *On Winds* 34

Theophrastus continues his explanation of the paradoxical phenomenon under consideration, turning his attention to the other side of the paradox, namely, why the protected areas are windy.

τὰ δὲ πρὸς βορέαν καὶ ὅλως κατ' ἀνεμον ἐπισκεπὴ διὰ τοῦτο πνευματωδέστερα, διὸ συμβαίνει συναθροιζόμενον ἐπὶ τὸ ὕψος οἷον ὑπερχεῖσθαι τὸ πνεῦμα καὶ ἐμπίπτειν ἀθρόον (*lac. 20 litt.*) κῶς. ἥ γὰρ ἂν ἐπιβρίση, αὕτη κατέρραξεν ἀληθῶς ἀθρόον.

Although the text continues to be in wretched shape, I think it is at least clear to this extent: that Theophrastus is explaining why the protected areas are windy, and that he connects the reasons for this to the other side of the paradox, namely, why the exposed elevated areas are calm.

The gist of his account—which I think is all that we can extract from this text—is that winds strike these elevated exposed areas, which are in fact protected by a buffer of air, and mass together and overflow around or over them,

and presumably reach and thus blow against or through those hollows and the like that *seem* to be protected from the wind.

Re. συναθροϊζόμενον ἐπὶ τὸ ὕψος (which I translate “massing together on high”): Steinmetz (1964, 47) translates this *an einer (relativ niedrigen) Höhe sammelt*. He may be right to add the parentheses—“(a relatively low) height”—as Theophrastus earlier (§ 27) referred to mountains too high for winds to flow over.

Re. ἥ ... ἂν ἐπιβρίσῃ (which I translate “on whatever it presses heavily”): The unstated (and unclear) subject may be the air that has massed together on high.

The first noteworthy textual issue is what to make of the manuscript reading κατήνυμα, which is not a word. Schneider prints the slightly altered κατήνεμα, but the meaning of this rare word seems to be the opposite of what is needed: LSJ (s.v. κατήνεμος) has “*exposed to the wind*, cj. in Thphr. *Vent.*34, cf. Ael. *NA* 4.6, Poll.1.115.” Theophrastus, however, is specifically referring to areas *sheltered* against wind. Perhaps he was (if κατήνεμα is correct) referring to places facing Boreas (i.e. the north) but generally sheltered against wind. That seems somewhat unnatural, but is not impossible. The other possibility is to accept Turnebus’ emendation κατ’ ἀνεμον (cf. Wimmer’s κατ’ ἀνέμους): “The (places) sheltered against Boreas and from wind generally ....” This is what I have elected to do.

The second textual issue concerns what to do about ms. A’s lacuna of roughly twenty letters, followed by the suffix -κῶς. Schneider, Wimmer, and Coutant all ignore both lacuna and suffix (as does Wood in his translation). In my text I indicate the lacuna and bracket the suffix, and in my translation I indicate the lacuna. Here I can do nothing more than guess at what might have filled the gap: I think it likely that whatever was there modified or otherwise elaborated on ἐμπίπτειν ἀθρόον (“falls in a mass”). A number of adverbs ending in -κῶς could describe an accumulation of air falling in a mass: e.g. μαλακῶς, ἐπεικῶς, or perhaps κυκλικῶς (“in a circular fashion”; note συστροφή and ἐπὶ τῶν τυφώνων in the next passage). We might find a clue to what filled this gap in the description of the same phenomenon, in the statement of the paradox in § 32: οὐ μετρίως ἀλλὰ σφοδρῶς (“not moderately but violently”); so for instance, (σφοδρῶς ἢ οὐκ ἐπιεὶ)κῶς (“violently or not gently”) is a good fit.<sup>355</sup>

Finally, the three words with which this passage ends (in ms. A, κατέραξεν ἀληθῶς ἀθρόον) have troubled editors, the first of them for good reason. Neither ms. A’s κατέραξεν nor ms. D’s κατέραξον is a word; Grynaeus’ κατέρραξεν, however, is. The further adjustment suggested by Schneider—κατέρρηξεν (1821,

355 Gigon suggests (καὶ σφοδρῶς).



5: lvii)—works as well or better (and was adopted by Wimmer and Coutant), but both come down to the same thing: *fall* or *rush down*. (I print Grynaeus' reading, as it is closer to ms. A.) The pair ἀληθῶς ἀθρόον, however, is not in fact problematic—though Schneider suggested bracketing both words (1821, 5: lvii),<sup>356</sup> and Coutant did bracket ἀληθῶς. This word does stand out as a bit odd, but perhaps κατέρραξεν ἀληθῶς (“truly rushes down”) is meant to be contrasted with οἷον ὑπερχειῖσθαι (“as it were overflows”). Now on the one hand, the case could be made that ἀθρόον (the second occurrence in this passage) adds nothing, and is here merely as a result of dittography; on the other hand, ἀθρόον does not create any problems, and may well have been what Theophrastus wrote. So I see no compelling reason to strike out either ἀληθῶς or ἀθρόον.

γίνονται δὲ καὶ αἱ καταιγίδες ἐν τοῖς τοιούτοις· συστροφὴ γὰρ ἐνταῦθα καὶ ἀθροισμὸς πνεύματος. ὥσθ' ἔταν ἐκραγῇ καθάπερ πληγὴν ἐποίησεν. ἰσχυρὸν γὰρ τὸ ἀθρόον καὶ συνεχές, ὥσπερ καὶ ἐπὶ τῶν τυφῶνων.

The locations referred to here are the same ones discussed in the previous passage: elevated areas not directly exposed to the winds.

Theophrastus mentions two (similar) meteorological phenomena: ἡ καταιγίς (which I translate “squall”) and ὁ τρυφῶς or τρυφῶν (which I translate “whirlwind(s)”). There is a relevant and instructive passage in the *On the Cosmos* attributed to Aristotle: “Of the violent winds (or air-flows, πνευμάτων), a *kataigis* is a wind suddenly striking from above, a *thuella* is a violent wind in fact springing up all of a sudden, and a *lailaps* or *strobilus* is a wind twirling<sup>357</sup> upward from below”<sup>358</sup> (4.395a5–8). ὁ τρυφῶς is discussed a few lines later, though I think the author is not using it in the same way as Theophrastus, as it seems to refer to a lightning bolt that is entirely lacking in fire (4.395a21–24).<sup>359</sup> Theophrastus, by contrast, is likely using ὁ τρυφῶς to refer to what the author of *On the Cosmos* is calling λαῖλαψ or στρόβιλος. Aristotle's view is more complicated, however: As in *On the Cosmos*, ὁ τρυφῶς is treated together with thunder

356 Later in the same volume (1821, 5: 161), he writes: *Verbal duo ἀληθῶς ἀθρόον supervacanea sunt, fortasse reliquiae e lacuna superstites.*

357 For εἰλέω in the sense of twirling or winding or whirling, see LSJ s.v. εἶλω C.

358 τῶν γε μὴν βιαίων πνευμάτων καταιγίς μὲν ἐστὶ πνεῦμα ἄνωθεν τύπτον ἐξαίφνης, θύελλα δὲ πνεῦμα βίαιον καὶ ἄφνω προσαλλόμενον, λαῖλαψ δὲ καὶ στρόβιλος πνεῦμα εἰλούμενον κάτωθεν ἄνω ....

359 τὸ δὲ ἀστράψαν ἀναπυρῶθεν, βιαίως ἄχρι τῆς γῆς διεκθέον, κεραυνὸς καλεῖται, ἐὰν δὲ ἡμίπυρον ᾖ, σφοδρὸν δὲ ἄλλως καὶ ἀθρόον, πρηστήρ, ἐὰν δὲ ἄπυρον παντελὺς, τυφῶν ...

and lightning (see the opening of *Mete.* 2.9<sup>360</sup> and all of 3.1), because they are all caused by the same kinds of exhalations.<sup>361</sup> But it is clearly a kind of wind, and in fact is related to ὁ ἐκνεφίας—the out-of-cloud wind, often translated ‘hurricane’ or ‘squall’.<sup>362</sup>

I think it likely that Theophrastus discusses squalls here because he believes that they in part account for why sheltered elevated locations are in fact windy.<sup>363</sup> It is less clear whether the same is true regarding his mention of whirlwinds.

Theophrastus discusses violent winds moving with a circular motion in §§ 52–53 and in his *Metarsiology* 13.33–54.

ἀ μὲν οὖν διὰ τοὺς τόπους συμβαίνει ταῦτα καὶ τοιαῦτα τυγχάνει. πολλὰ δ' ἐστὶ καὶ πολλαχοῦ περὶ ὧν ἐκάστου τῆς ἱστορίας λέγει(ν).

This passage brings to an end not only §§ 29–34 (on the influence of location on the strength of winds), but also serves as a conclusion to §§ 26–28 (on the influence of location on the direction of winds). Theophrastus has discussed some influences, in the case of certain winds and certain locations; and he has in §§ 26–34 raised and answered or solved a number of questions or puzzles or problems concerning the winds and involving locations and their geological features. He wants it to be clear that his (relatively) extensive discussion of the influence of location on the nature of particular winds should not forestall further inquiry but encourage it.

Why did Theophrastus say this here? Perhaps he thought it especially important to make this point in connection with the influence of location on winds. I think it likely, however, that he also said something like this, only more general,

360 περὶ δὲ ἀστραπῆς καὶ βροντῆς, ἔτι δὲ περὶ τυφῶνος καὶ πρηστήρος καὶ κεραυνῶν λέγωμεν· καὶ γὰρ τούτων τὴν αὐτὴν ἀρχὴν ὑπολαβεῖν δεῖ πάντων (2.9.369a10–12).

361 Coutant & Eichenlaub (1975, 80) write: “The kataigis (fallwind) was interpreted by Aristotle as within the theory of lightning and outside the framework of wind theory. Theophrastus correctly places the kataigis within wind theory without utilization of the dry exhalation.” This is incorrect in that Aristotle never mentions καταίγης, unless Coutant and Eichenlaub are counting *On the Cosmos*, where it is mentioned once (in the passage quoted). Their statement would have been (more) accurate had they instead referred to the τρυφῶς.

362 See especially *Mete.* 3.1.371a1–5: καλεῖται δ' ἂν ἀχρωμάτιστον ἦ, τοῦτο τὸ πάθος τυφῶν, ἄνεμος ὧν, ὅλον ἐκνεφίας ἄπεπτος. βορείοις δ' οὐ γίγνεται τυφῶν, οὐδὲ νιπτικῶς ἐχόντων ἐκνεφίας, διὰ τὸ πάντα ταῦτ' εἶναι πνεῦμα, τὸ δὲ πνεῦμα ξηρὰν εἶναι καὶ θερμὴν ἀναθυμίασιν.

363 Cf. Steinmetz (1964, 47): *Das Phänomen, daß an und für sich windgeschützte Plätze windig sind, wird mit Hilfe der Fallwinde [= αἱ καταγίδες?] erklärt ....*

at the end of *On Winds*, though those concluding remarks are now missing. In any case, these concluding words also indicate that he will be turning to a new topic (for which there is little or no transition or preparation).<sup>364</sup>

### *On Winds* 35

§§ 35–36 form a unit, in which Theophrastus presents a very condensed account of the signs of wind.

There was in the Lyceum a fair amount of interest in weather signs. According to Diogenes Laertius, Aristotle wrote a *Σημεῖα χειμῶνων* in one book (5.25 [367 Dorandi]) and Theophrastus a *Περὶ σημείων*, also in one book (5.45 [166 Dorandi]).<sup>365</sup> Among extant works, Aristotle occasionally discusses weather signs in his *Meteorology* and *History of Animals*,<sup>366</sup> and they are discussed a half dozen times in [Arist.] *Pr.* 26. There survives a Peripatetic work on weather signs (*Περὶ σημείων ὑδάτων καὶ πνευμάτων vel sim.*), usually referred to as *De signis*,<sup>367</sup> which in the manuscript tradition is sometimes ascribed to Aristotle and sometimes left anonymous—though, from the 16th to the 19th centuries, Theophrastus was generally considered its author (a view no longer widely accepted, and for good reason).<sup>368</sup>

364 Thus Steinmetz's initial comment on §§ 35–36 (1964, 47): *Die Überleitung zum neuen Thema ist abrupt.*

365 On the other ancient *testimonia*, see Cronin (1992, 308–310) and Sider & Brunschön (2007, 11–13).

366 Aristotle also discussed signs in connection with certain types of arguments. See especially *APr.* 2.27 and *Rh.* 2.25. Here is part of his description of a sign in *APr.* 2.27: “whatever is such that if it is, a certain thing is, or if it happened earlier or later the thing in question would have happened, that is a sign of this thing's happening” (Smith trans.) (οὐ γὰρ ὄντος ἔστιν ἢ οὐ γενομένου πρότερον ἢ ὕστερον γέγονε τὸ πρᾶγμα, τοῦτο σημείον ἐστὶ τοῦ γεγενῆσθαι ἢ εἶναι) (70a6–9).

367 Sider & Brunschön (2007) is a critical edition of the Greek text, with translation and commentary.

368 *On Signs* has a manuscript tradition different from that of other Theophrastean opuscula; it was usually transmitted with the Peripatetic *Physiognomonica* and *De ventorum situ* (the latter normally bearing the title Ἀνέμων θέσεις καὶ προσηγορίαι· ἐκ τῶν Ἀριστοτέλους Περὶ σημείων). More on this latter below, p. 350. Of the two most authoritative manuscripts, one (the oldest, *Marc.* 1V 58) names no author, the other (*Vat. gr.* 2231) names Aristotle. The 13th century Latin translation of Bartholomew of Messina, which comes from an independent tradition and is important for establishing the text, also attributes the work to Aristotle. The *On Signs* is ascribed to Theophrastus only in *Vat. Reg. gr.* 123, a 16th century manuscript

These works—or this Peripatetic field of inquiry generally—form the background to §§ 35–36. I assume Theophrastus covered as much as he thought was necessary to shed additional light on the nature of winds, including their accompanying attributes.<sup>369</sup> As is often the case, the state of the text that has come down to us is as much an obstacle to comprehension as Theophrastus' overly terse presentation.

§ 35 provides a general account of the phenomenon of signs of wind, including a discussion of waves as both related to and signs of wind; § 36 discusses other signs (e.g. shooting stars). See *On Signs* 26–37 for a list of the signs of wind.

τὰ δὲ τοιάδε κοινὰ πάντων τῶν ἀνέμων, οἷον ὅσα σημειώδη καθ' ἕκαστον ἐν τῷ μέλλειν· ὁ γὰρ ἀήρ ἀχλυσούμενος κατὰ πυκνότητα καὶ μανότητα [μ]ῆ κατὰ θερμότητα καὶ ψύξιν ἢ κατ' ἄλλην τινὰ τοιαύτην διάθεσιν, ἐξεδήλωσεν αἰεὶ τὴν ἐπιούσαν πνοήν.

I leave τὰ τοιάδε unspecified in my translation (“The following”); cf. Wood (“The following phenomena”) and Coutant (“The following features”). One could make a case for an implicit σημεία: “The following (signs).” In any case, the next topic to be covered is signs of wind; specifically, those that are common to all winds.<sup>370</sup>

It is interesting (and perhaps surprising) that Theophrastus mentions changes in the density or temperature of air as signs of coming wind. Not that these are implausible (on the contrary, it is a subtle observation), but they do not match any of the examples that he goes on to discuss or list: waves in § 35, certain atmospheric phenomena in § 36.<sup>371</sup> That is, all the examples he gives

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copy of the Aldine edition (1497), which itself gives no author for the work. The mistaken attribution is likely due to its being preceded by three works of Theophrastus in the Aldine edition. Grynaeus' is the first printed edition (1541) to attribute the work to Theophrastus. (See Sider & Brunschön 2007, 40.)

369 Aside from the brief sentence quoted in note 364, the following is Steinmetz's sole comment on §§ 35–36 (1964, 47): *Da, wie es scheint, Theophrast die Vorzeichen des Windes in einer eigen Schrift ausführlich behandelt hat, sollte dieser Vorgriff im Zusammenhang mit der Analyse von De signis tempestatum etc. interpretiert werden.*

370 In *On Signs*, §§ 26–34 list signs of wind generally (with a couple of specific exceptions: Notos [in § 33], Etesians [in § 34]), whereas §§ 35–37 discuss individual winds (e.g. Kaikias, Lips), though it reads like an addendum and does not mention signs of these winds.

371 Lehoux (2007, 5) makes a distinction between *atmospheric* and *astronomical* weather signs; and though shooting stars (see § 36) would seem to us to be clearly astronomical, for Theophrastus they are atmospheric. An example of an astronomical weather sign would be the rising of the Pleiades. (In *On Signs*, there are no astronomical signs of wind.)

involve wind causing something to move, in which case what is moved reaches us (and is perceived by us) before the wind does, thus acting as a sign of wind. There is no example in *On Winds* of wind (or the conditions that bring about or accompany wind) causing a change in temperature or density, thereby signifying a coming wind.

The following, from *On Signs* 27, may be an example of air density as a sign: “A darkish moon signals rain, a reddish one wind” (σημαίνει ζοφώδης μὲν ὕδωρ, πυρώδης δὲ πνεῦμα). This would be a relevant example, if it is the density (and composition) of the air that changes how we perceive the moon, and specifically if what causes us to perceive the moon as red is brought about by wind or accompanies what gives rise to wind. [Arist.] *Pr.* 26.61 seems to present (or consider) change in temperature as relevant to a sign of wind:

Why, when many spider webs are in motion, are they signs of wind? Is it because the spider works in fine weather, but (its web) moves *because the cooling air collects on the ground*, and this cooling is a beginning of a storm? Therefore, the movement of the spider webs is a sign.<sup>372</sup>

947a33–37

I take τὸ ψυχόμενον τὸν ἀέρα συνιέναι πρὸς τὴν γῆν to refer to the drop in temperature prior to a storm and thus wind. To make sense, this must be referring to a drop in temperature imperceptible to humans but not to spiders; otherwise, the temperature drop would itself be the sign, and not the moving spider webs.

Three comments on textual issues in this opening section of § 35: (1) Turnebus is right that we should read an implicit πνεῖν with μέλλειν, such that τῷ μέλλειν is a condensed way of saying “what (wind) is about (to blow).” (2) In place of the manuscripts’ ἀγλυούμενος (“darkening”),<sup>373</sup> Bonaventura (1593, 168) suggests ἀλλοιούμενος (“altering” or “changing”), which has been accepted by editors ever since. Though I print ἀγλυούμενος, Bonaventura may well be right, since Theophrastus is not discussing density alone—which, as we saw, was likely thought to affect e.g. how we perceive the moon—but also the change in temperature. (3) Turnebus’ change of μῆ to ἡ ought to be accepted. Otherwise the text would have Theophrastus denying that temperature is involved: κατὰ

372 Διὰ τί τὰ ἀράχνια τὰ πολλὰ ὅταν φέρηται πνεύματός ἐστι σημεία; πότερον ὅτι ἐργάζεται ὁ ἀράχνης ἐν ταῖς εὐδαίαις, φέρεται δὲ διὰ τὸ ψυχόμενον τὸν ἀέρα συνιέναι πρὸς τὴν γῆν, τὸ δὲ ψύχεσθαι ἀρχὴ χειμῶνος; σημείον οὖν ἢ φορὰ τῶν ἀραχνίων .... (Both the text and translation are different from what appears in my Loeb edition. My revised view of *Pr.* 26.61 is discussed and defended in Mayhew 2017.)

373 Ms. A is illegible, but ms. D has ἀγλυούμενος.

πυκνότητα καὶ μανότητα μὴ κατὰ θερμότητα καὶ ψύξιν ἢ κατ' ἄλλην τινὰ τοιαύτην διάθεσιν ("according to density and rarity, not [μὴ] according to heat and cold, or according to some other such condition" etc.). But this would be an odd thing for Theophrastus to say.

ὁμοιοπαθὴ γὰρ τὰ κατὰ τὸν ἀέρα, καὶ προτερεῖ τὸν ἀνέμον εἰς τὴν ἡμετέραν αἴσθησιν.

This line is meant to support (γάρ) the previous passage by establishing a logical or natural connection between the sign of wind, which we perceive, and the wind it signifies, which we do not perceive until later. But the line is terse, and not entirely clear. The adjective ὁμοιοπαθὴ is clear enough: two or more things are ὁμοιοπαθὴ when they are similarly affected or in the same condition.<sup>374</sup> This means that, under the same conditions, what happens to one will happen to the other. Less clear is the phrase τὰ κατὰ τὸν ἀέρα: I take κατὰ with the accusative here to mean "in relation to" or "concerning"; but in fact, Theophrastus seems to mean "air and anything connected to air." This explains the urge to over-translate ὁμοιοπαθὴ ... τὰ κατὰ τὸν ἀέρα. Wood renders it "the conditions of the air sympathise with the movements of the wind"; Coutant "the winds are in key with the air." These are basically accurate paraphrases, except that I think it is mistaken to import "wind(s)" into the line. Theophrastus' point seems to be—and his argument requires—that whatever condition the wind (or perhaps what produces the wind) is in, so too will be the air affected by the wind. (I make my translation a bit smoother by using the singular rather than the plural of the Greek: "For what is related to the air is similarly affected ....")

There is here a missing premise (so to speak), namely, that the wind continues to move after it has affected or begins to affect the air that it affects.

We can describe Theophrastus' point as follows. Let A be the wind, C the perceiver, B the air that exists between A and C and is directly perceivable by C; and, let → stand for 'affect' or 'change' or 'influence'. So, A → B → C, and only later does A → C. And since C knows that A → B, B is a sign of A.

The one textual problem concerns προτερεῖ τὸν ἀνέμον: First, neither ms. A's προτυρεῖ nor ms. D's προτηρεῖ is a word. So Turnebus' προτερεῖ—off by one letter—is surely correct. Now the standard meaning of προτερέω is "precede," and what it precedes generally takes the genitive or dative (see LSJ s.v.); but προτερέω does sometimes go with the accusative, in which case (see LSJ s.v. II) it means to go beyond or surpass. So I do not think we have to follow Turnebus

374 Elsewhere, Theophrastus says that things that are ὁμοιοπαθὴ are μὴ ἐναντία (HP 5.7.2)—perhaps the minimum requirement for being ὁμοιοπαθὴ.

in changing the case (and number) of τὸν ἀνέμον to τῶν ἀνέμων. The affected air precedes the wind to our perception, as if beating it in a race.

ώσαύτως δὲ καὶ ἐπὶ τῆς θαλάττης καὶ τῶν ὑδάτων ἔστι τισὶ τὰ αὐτὰ σημεῖα λαβεῖν· ἐπεὶ καὶ τὰ κύματα προανιστάμενα καὶ προεκπίπτοντα σημαίνει τοὺς ἀνέμους.

Above I said that § 35 includes a discussion of waves as both related to and signs of wind. I did so because in this passage, Theophrastus seems to be saying not only that waves “signify winds” (σημαίνει τοὺς ἀνέμους), but also that wind and waves are comparable and that this is instructive. In what ways they are similar and different will become (somewhat) clearer in the following passage. But the focus of comparison is the way a wave moves the water that it encounters, and the way wind moves the air that it encounters—and this latter is of course necessary for understanding many of the signs of wind. Nevertheless, in what follows Theophrastus discusses the way in which wind moves waves, thereby explaining how waves can be signs of wind.

The discussion here and in the remainder of § 35 is clearly connected to four chapters in [Arist.] *Pr.* 23 (namely, 2, 11, 12, 28),<sup>375</sup> which is not to say the author(s) of *Pr.* 23 has precisely the same conception of the relationship between wind and waves.

προωθείται δὲ (τὰ κύματα οὐ) συνεχῶς ἀλλὰ κατὰ μικρόν· τοῦτο δὲ προωθεί ἄλλ’ ὃ προῶσε καὶ πάλιν (ὑστερον ὑπ’) ἄλλης πνοῆς ἐκινήθη μαρανθείσης τῆς πρώτης, εἴθ’ οὕτως αἰὲ προωθουμένης προσέρχεται.

The text of this passage is thoroughly corrupt, but the gist of it is I think relatively clear: Wind causes waves—sets them in motion—but the way that a wind moves the air contiguous with it is different from the way that a wave moves the water contiguous with it. And the difference is such that although the wind sets the waves in motion, the waves reach us before the wind does, thereby making the waves a sign of wind.

What is unclear is precisely how the wind moves the waves. Does it do so in the way a person moves a row of dominoes standing on end? The person knocks over the first domino, which knocks over the next domino, which knocks over the next, etc. (with the person representing the wind, and the first domino the wave it creates, the next domino the wave pushed forward by that first wave, etc.). This is problematic, as the person knocking over the domino need not

375 On § 35 and *Pr.* 23, see Wilson (2015, 283–287).

arrive in the location where the last domino falls (let that represent the wave perceived by the observer). Or, does wind move the waves, as Wilson (2015, 285) describes it, “in the same way a traveler pushes luggage forward in an airport check-in line”—little by little, repeatedly moving the waves along? That faces problems as well. Continuing the quote from Wilson: “But this model is nowhere clearly in evidence in our texts and, more importantly, cannot explain why the wave shows up first (for the luggage and passenger arrive at the head of the line at the same time).” Now could one argue that just as the luggage in fact arrives just before the passenger, so the ‘last’ wave arrives just before the wind. But would that be enough of a difference (in arrival time) for the wave to count as a sign of wind?

In any case, perhaps the difference between wind and wave, and why the former arrives later than the latter, was (in the original text) something like the account found in *Pr.* 23.2:

Why do the waves sometimes begin to move before the winds do? Is it because the first part of the sea, near the origin of the wind, being pushed, always produces the same effect on the adjoining part? So, since the sea is continuous, motion comes to every part of it as if by one continuous blow. Now this occurs in one time, with the result that the first and the last parts are moved simultaneously. But the air does not experience this, because it is not one continuous body, through receiving from every direction many checks, which often hinder the first and most vigorous motion; but (these checks) do not do this to the sea, because it is heavier and harder to move than the air.<sup>376</sup>

When the author says that the sea is one continuous body, but the air is not (which difference explains why the water is, so to speak, moved all at once while the air is not), he seems to hold the view that there are in effect no empty spaces in bodies of water, while there are empty spaces within any mass of air. We have seen, elsewhere in *On Winds*, that Theophrastus relies on the movement of amassed air toward an ‘empty’ space to explain certain features

376 Διὰ τί τὰ κύματα πρότερον φοιτᾷ ἐνίοτε τῶν ἀνέμων; ἢ ὅτι πρὸς τῇ ἀρχῇ τοῦ πνεύματος ἡ θάλαττα ὡσθεῖσα (ἢ) πρώτη τὴν ἐχομένην αἰεὶ ταῦτόν ποιεῖ; διόπερ οὔσης αὐτῆς συνεχοῦς καθάπερ μιᾷ πληγῇ συνεχεῖ πάσαις (κίνησις) γίνεται. τὸ δὲ ἐν ἐνὶ χρόνῳ γίνεται, ὥστε συμβαίνει τὴν τε πρώτην καὶ τὴν ἐσχάτην ἅμα κινεῖσθαι. ὁ δὲ ἀήρ οὐ πάσχει τοῦτο, ὅτι οὔτ’ ἐστὶν ἐν σώμα συνεχές, τῷ πολλάς πάντοθεν ἀντικρούσεις λαμβάνειν, αἱ πολλάκις κωλύουσι τὴν πρώτην καὶ νεανικωτάτην κίνησιν, τὴν τε θάλασσαν οὐ ποιοῦσι τοῦτο διὰ τὸ βαρυτέραν καὶ δυσκίνητοτέραν αὐτοῦ εἶναι. See the discussion of this text in Wilson (2015, 285–287).



of the movement of air, and perhaps he is doing so in § 35 as well (though if so, it is not stated in the text that has come down to us).

The two biggest obstacles to comprehension in the present passage are the two lacunae. The length of the first is roughly eleven letters, following προωθείταις. Like ms. B and most editors, I knock the final sigma off of προωθείταις. I fill in the gap, however, with τὰ κύματα οὐ. Now one could take τὰ κύματα to be implied from the previous passage, but it does fit the gap nicely and is arguably necessary for clarity (as one could also make a case for taking τὰ πνεύματα as the subject).<sup>377</sup> And the οὐ (first suggested by Turnebus) is necessary, as Theophrastus *contrasts* continuous motion with moving little by little (see §§ 12 & 19), so that it is not likely that he would say that “The waves are pushed forward continuously, but little by little” (unless the contrast between continuous motion and moving little by little applies to wind but not to waves, in which case “little by little” is meant to qualify the continuous movement of the waves).

Much is uncertain in filling the second lacuna as well: πάλιν (*lac. 8 litt.*) ἄλλης πνοῆς ἐκινήθη κτλ. I have printed a suggestion from Christian Wildberg (ὕστερον ὑπ’), which I think works nicely.<sup>378</sup>

παρόντος δὲ τοῦ κινουμένου φανερόν ὅτι καὶ τὸ κινοῦν ἤξει.

This line states the general principle behind signs of wind (or at least certain signs of wind, including waves): that when what has been set in motion is present (to us, the perceivers), then obviously “what sets it in motion will arrive as well.” Of course, this is true only when what sets it in motion itself continues to move unobstructed and for at least the same distance as what it moves. For instance, it would not be true in the case of a person knocking over the first of a row of dominoes.

The second hand in ms. B makes a correction that ought to be accepted: κινουμένου for ms. A’s κειμένου, which makes no sense in this context.

συμβαίνει δὴ καὶ προτερεῖν τὰ κύματα τῶν πνευμάτων· ὕστερον δὲ διαλύονται καὶ παρακμάζουσι, διὰ τὸ δυσκινητότατον καὶ δυσκαταπαυστότερον.

This passage—even once corrected by the second hand in ms. B (more shortly)—has problems. The trouble occurs with ms. A’s ὕστερον τὰ κύματα τῶν

377 Gigon suggested προωθείται γὰρ ὑπ’ ἀρχομένου πνεύματος οὐ), Wilson (2015, 287 n. 28) προωθεί γὰρ (τὸ πνεῦμα, οὐ).

378 Turnebus filled the lacuna with ὑπ’ alone, Furlanus with ὁ προέωσε δι’, Gigon with πυκνωθεὶ ὑπ’ (citing *Pr.* 23.11.932b33 as a parallel text).

πνευμάτων. The most natural way to render this (with συμβαίνει) is: “it happens that the waves are/come later than the winds.” But the whole point is that the winds will arrive later than the waves (which signal their coming). One remedy is to take ὕστερεῖν here to mean “occur later” (which it can mean), stretched to have the sense “last longer”; for in the next line Theophrastus says precisely that—that the waves “break up and fade away later.” Hence Wood’s “continue after” and Coutant’s “persist after.” But I find such renderings of ὕστερεῖν rather forced. Therefore, I think that either (1) the verb is wrong—e.g. the scribe wrote ὕστερεῖν instead of προτερεῖν (perhaps caused by ὕστερον in the next line)—and what was meant was “the waves come *before* the winds”; or (2) the scribe wrote τὰ κύματα τῶν πνευμάτων when he should have written τὰ πνεύματα τῶν κυμάτων (“the winds come later than the waves”). The second is very unlikely, however, as τὰ κύματα is surely the unstated subject of the next line; and so it must be the subject of συμβαίνει ... ὕστερεῖν/προτερεῖν as well. I have thus elected to change ὕστερεῖν to προτερεῖν (ὕς to προ). Note that Theophrastus used the same verb (προτερεῖ) earlier in § 35.

The second half of this passage is an addendum, for clarification. It does not follow that because the winds arrive after the waves, the winds persist longer than the waves. For the same reason that winds take longer to arrive than waves—the difference in how air and water are each moved—the waves take longer to die down.

The second hand in ms. B makes two corrections that should be accepted: διὰ τὸ for ms. A’s meaningless τοιαῖ; and, the change of one letter (-π- for -χ-) to yield δυσκαταπαυστότερον. Another textual point: Wood may be right in changing δυσκινήτοτατον (“most difficult to set in motion”) to δυσκινήτοτερον (“more difficult ...”)—Gigon recommended the same, though he considered it an original ‘correction’—but as the former is not impossible I have retained the reading of ms. A.

### *On Winds 36*

In § 35, Theophrastus gave a brief, general account of the signs of wind, and stated the basic principle that makes them possible (“when what is set in motion is present, it is obvious that what sets it in motion will arrive as well”), using waves as a paradigm case. In § 36, he discusses other, atmospheric, signs of wind. Though the text is in poor shape, I think its meaning comes through nevertheless.

κοινὰ δὲ καὶ τὰ τοιαῦτα πλειόνων, οἷον ἀστέρων τε (διαττόντων) καὶ ἄλων καὶ παρηλίων φάσις καὶ ἀπομάρανσις ἢ ῥήξις καὶ εἴ τι τοιοῦθ' ἕτερον.

Re. κοινὰ δὲ καὶ τὰ τοιαῦτα πλειόνων: It is more natural to take this to be saying that the atmospheric phenomena Theophrastus goes on to list are common to the majority of winds, and so I translate it: “And the following too are common to very many (sc. winds).”<sup>379</sup> But one might also take an implied σημεία with κοινά, as Wood does: “The following also are common indications of the majority of winds.” The πλειόνων is ambiguous as well: what follows are common to or common signs of very many (i.e. the majority of) winds, or they are signs of very many (i.e. abundant) winds. The first καὶ (‘too’, ‘also’, ‘as well’) is a reference to the waves in § 35: what follows *too* (i.e. in addition to waves) are common to many winds or signs of many winds.

The additional weather signs are “the appearance and the fading away or breaking up” (φάσις καὶ ἀπομάρανσις ἢ ῥήξις) of ... what? Here the text is corrupt and requires conjecture and emendation. Ms. A reads: τελες(*lac. 7 litt.*)σκε ἄλων καὶ παρ' ἡλίῳ. We can surmise (it seems Turnebus was the first to do so) that a scribe wrote ἄλων καὶ παρ' ἡλίῳ (which is real Greek, but wrong here) because he did not know what haloes and parhelia were (more on those shortly): this should almost certainly read ἄλων καὶ παρηλίων. The remainder—τελες(*lac. 7 litt.*)σκε—is obviously more difficult to determine and more open to various readings. The scholarly consensus is to retain τε at the beginning, as a separate word, and take σκε at the end as a corruption of καί, and then to fill in the gap with something that fits the context (ἀστέρων τε \*\*\*\*\* καὶ ἄλων καὶ παρηλίων). This is quite plausible, and I follow the consensus. There have been two viable suggestions (aside from leaving the lacuna in the text): (1) Furlanus' καὶ σελήνης,<sup>380</sup> in which case the line reads “the appearance and the fading or breakup of stars, moon, haloes, mock-suns [= parhelia]” (the translation of Coutant); or (2) Bonaventura's (1593, 169) διαθέοντων (improved by Wimmer to the alternative spelling διαττόντων),<sup>381</sup> which modifies ἀστέρων, thus yielding (in my translation) “the appearance and the fading away or breaking up of (shooting) stars and haloes and parhelia.”

On support for shooting stars (and for the spelling διαττόντων), consider these relevant passages in *On Signs* and *Pr.* 26. *On Signs* twice refers to shooting stars as weather signs:

379 Cf. Coutant: “The following are also common to many winds.”

380 As support for this reading, see [Thphr.] *Sign.* 27.

381 Though Wimmer inexplicably omits καὶ ἄλων.

Many shooting stars (are a sign) of rain or wind, and whence they shoot thence (comes) the wind or the rain.<sup>382</sup>

13. 83–84

Whence come many shooting stars, thence (comes) wind; and if from all directions likewise they signal many winds.<sup>383</sup>

37.270–272

No causal connection between winds and shooting stars is established here (that is typical for *On Signs*), though one is suggested in *Pr.* 26.23. This brief chapter is fairly straightforward, consisting of three lines: a question; one provisional follow-up question, suggesting a causal connection; and, one (facile) explanation of this suggestion.

Why, whenever there are shooting stars, is it a sign of wind? Is it because they are carried by the wind, and a wind occurs there before (it occurs) near us? And this is why from which place the (shooting) stars are carried, in this (place) too the wind occurs.<sup>384</sup>

The primary assumption or hypothesis here—the middle premise, so to speak, explaining or causally connecting shooting stars and the wind—is the idea that shooting stars are carried by wind. For if shooting stars *are* carried by the wind, it makes sense to think that after they burn out (as shooting stars do, and quickly) the wind will or might keep going for some time after, and in the direction in which the shooting stars were moving, and they will (or might) thus ultimately reach the observers of the shooting stars from that direction. What is completely missing in *On Winds* is an account of shooting stars (and these other phenomena). I assume Theophrastus dealt with them elsewhere or deferred to Aristotle's account (see *Mete.* 1.4.341b1–35). Aristotle, however, explains such phenomena by reference to dry exhalations interacting with the layer of fire beyond the layer of air which encircles the earth.

382 ἀστέρες πολλοὶ διάττοντες ὕδατος ἢ πνεύματος (sc. σημείον), καὶ ὅθεν ἂν διάττωσιν ἐντεῦθεν τὸ πνεῦμα ἢ τὸ ὕδωρ. (I follow the reading of ms. M, ἐντεῦθεν, rather than that of ms. V, ἐκεῖθεν.)

383 ὅθεν ἂν ἀστέρες διάττωσι πολλοὶ ἄνεμον ἐντεῦθεν· ἐὰν δὲ πανταχόθεν ὁμοίως πολλὰ πνεύματα σημαίνουσι. Aratus 926–932 makes pretty much the same claim.

384 Διὰ τί, ὅταν ἀστέρες διάττωσιν, ἀνέμου σημείον; ἢ ὅτι ὑπὸ τοῦ πνεύματος φέρονται, καὶ πρότερον ἐκεῖ γίνεται πνεῦμα ἢ παρ' ἡμῖν; διὸ καὶ ἀφ' οὗ ἂν τόπου φέρονται οἱ ἀστέρες, ἐν τούτῳ καὶ τὸ πνεῦμα γίνεται.

On parahelia or mock-suns, see Arist. *Mete.* 3.2.372a10–16 and esp. 3.6.377b13–378a11, and [Thphr.] *Sign.* 22.151 (as a sign of rain) and 29.204 (as a sign of wind). On haloes, see: Thphr. *Metars.* 14 (a relatively long account of haloes around the moon); Arist. *Mete.* 3.2.371b18–26 and esp. 3.3 (which discusses haloes as weather signs); and, *Sign.* 22.152–153 (as a sign of rain) and 31.219–220 (as a sign of wind).

The end of this passage is corrupt as well. Ms. A has ἐπὶ τοτουθεστερον.<sup>385</sup> I accept the suggested emendations of Turnebus and Furlanus and print εἴ τι τοιοῦθ' ἕτερον—an expression that appears a dozen times in Aristotle (the earliest occurrence, according to the *TLG*), and ten times in Theophrastus (not counting this passage). Like εἴ τι ἄλλο τοιοῦτον (see above pp. 112–113), εἴ τι τοιοῦτον ἕτερον is a common formula in Aristotle and Theophrastus used to refer to any other items (of what has been listed or discussed), *if* in fact there are any others. It is unclear whether Theophrastus believes there are any other such signs of winds; he does not go on to discuss any. But see also: Arist. *Mete.* 1.4.341b1–35, which in addition to shooting stars, discusses what are called goats and torches (said to be phenomena similar to shooting stars); Arist. *Mete.* 1.7 and [Thphr.] *Sign.* 34.245–246, on comets as signs of wind; and, *Sign.* 27 on the different colors of the moon as signs of wind.

πρότερον γὰρ ὁ ἀήρ (ὁ) ἄνω τῷ πάσχειν ἀποδηλοῖ τὴν τῶν πνευμάτων φύσιν.

Theophrastus is here stating what, in general, makes atmospheric signs of wind possible. Winds (i.e. winds like Boreas, not local breezes) begin in the upper air<sup>386</sup> (the atmosphere, as opposed to the air around us and in contact with the ground). And what happens in the upper air, involving the winds, is often revealed to us before the winds reach us. So this upper air, in the case of atmospheric phenomena as signs of wind, is analogous to the sea in the case of waves as signs of wind.

Unlike the discussion of waves as signs, however, Theophrastus does not describe or indicate the mechanism by which wind is involved in atmospheric phenomena such that these can be signs of wind. One can merely speculate, based on what he writes elsewhere. For instance, in the *Metarsiology*, discussing haloes around the moon, Theophrastus (or his epitomizer) writes:

385 Two comments on the meaningless τοτουθεστερον: (1) As far as I can make out, in ms. A it begins τστ-, though it may actually be τοι-, which is supported by ms. D. (2) No accents or other marks are now legible, though there is a dot above ου, which just might have been the breathing mark over the upsilon that is clear to see in ms. D.

386 Accepting Schneider's addition ὁ ἀήρ (ὁ) ἄνω (cf. ὁ ἄνω ἀήρ in Arist. *Mete.* 1.5.342b1 and *DC* 2.13.295a27).

The halo round the moon occurs when the air becomes thick and is filled with vapor, so that a wavelike movement arises in it on account of the moonlight. In a similar way, if we throw a stone into water, a circular movement occurs round the stone.

14.2–4

One can imagine Theophrastus arguing that the rippling movement radiating out from the moon affects air in such a way that it creates wind, which reaches the observer long after he has seen the halo around the moon. In the same work, Theophrastus claims that one cause of lightning is friction—between what and what is not stated, though it is said to be like one piece of wood rubbing against another to produce fire (2.2–5; cf. 4.2–3).<sup>387</sup> One can speculate (but no more) that Theophrastus held that some sort of motion in the upper air, which causes wind, also produces the friction, which results in shooting stars.

Re. τὴν τῶν πνευμάτων φύσιν: See the last sentence of § 36, with discussion (below).

Two minor textual issues (in addition to the one mentioned in n. 385): (1) We should accept Turnebus' suggestion—τῷ for ms. A's τὸ—which yields τῷ πάσχειν (a much better fit): “by what is happening to it” or “by being affected.” This combination appears ten times in Aristotle (e.g. *Mete.* 4.1.378b24, 4.8.385a5). (2) In place of ἀποδηλοῖ (which first appears in ms. V<sup>a</sup>), mss. A and D have ἀποδη<sup>λ</sup>. I assume this is an abbreviated form of ἀποδηλοῖ; but as neither <sup>λ</sup> nor <sup>η</sup> appears elsewhere in ms. A (as abbreviations for -λοῖ and -οῖ respectively), I thought it a good idea to indicate the difference in the *apparatus criticus*.

ἔστι δὲ τὸ ἐπὶ τέλει μεγίστους εἶναι· καὶ γὰρ τοῦτο κοινὸν πλείοσιν. ὅταν δ' ἀθρόον ἐμπνεύσωσιν· μικρὸν γίγνεται τὸ λοιπόν.

I cannot make sense of this passage as it appears in the manuscripts (and even emended I am not completely confident in my interpretation of it). First, ἔστι appears twice in the opening clause (ἔστι δὲ τὸ ἐπὶ τέλει μεγίστους ἔστι), and I think it is necessary to emend one of these. Turnebus has suggested ἔτι for the first ἔστι and Aldus prints εἶναι in place of the second. Schneider, Wimmer, and Coutant have all introduced *both* emendations into their editions, but I

387 See also frs. 166–167 FHS&G, two late Latin sources (Macrobius and the *Lumen animae*) which combined attribute to Theophrastus the view that the Milky Way is air on fire, where the two hemispheres of the heavenly sphere meet (perhaps implying that this fire is caused by friction).

think that should be avoided if possible, and in fact it is unnecessary. I follow the Aldine in replacing the second ἔστι, but I retain the first, taking it to mean ‘it is (true/the case)’. In the second clause, τοῦτοις κενὸν makes no sense (καὶ γὰρ τοῦτοις κενὸν πλείοσιν). Even improving the grammar by inserting τὸ before κενὸν would still yield the meaningless “for indeed, (the) void (exists) in very many (winds?).” Thus, I follow other editors in accepting Turnebus’s emendation of τοῦτοις κενὸν to τοῦτο κοινὸν. I translate the entire sentence: “And it is true that winds are most powerful at the end, for this is indeed common to very many.” The second clause qualifies the first: this is true in the sense of being the case for very many winds. This interpretation, however, creates problems for the opening of the second sentence; because what follows does not support (γὰρ) the opening statement, but in fact should be contrasted with it. I therefore introduce one more revision: δ’ for γὰρ after ὅταν. This second sentence so interpreted indicates the (or an) exception that makes the fact described in the first sentence true in only very many cases: “*But* when they blow out in a mass, little remains” (more literally ‘what remains is little’).<sup>388</sup>

That many winds are most powerful at the end helps explain why signs of wind (especially atmospheric ones) are possible: i.e., e.g. why the winds that carry shooting stars do not die out long before they reach us. Theophrastus is saying that this attribute is common to many winds, which helps to explain why being preceded by signs is common to many winds. The exceptions, however, are those winds that emerge from their source in a mass and so are strong at the beginning but not at the end: they tend not to reach us, or if they do there is very little left of them. We perceive the effect of the wind, but not the wind itself; thus the effect is not a sign of wind. In any case, this is the most sense I can make of this passage in context.

Cf. *Pr.* 26.25 (which I here quote in full): “Why are the winds most powerful at the end? Is it because when they blow out in a mass, little remains?”<sup>389</sup>

388 One other textual matter here: Forster (1921, 166–167) claims that “we must read” ἀθροὶ ἐκπνεύσωσιν (from *Pr.* 26.25, quoted below) for ἀθρόον ἐμπνεύσωσιν. I think he’s half right: ἐκπνεύσωσιν (first suggested by Bonaventura 1593, 170) is almost certainly the better reading; ἀθρόον, however, acts as an adverb here, as it often does (LSJ s.v. ἀθρόος IV), and should be retained (though both convey the same meaning).

389 Διὰ τί οἱ ἐπὶ τέλει ἄνεμοι μέγιστοι; ἢ ὅτι ὅταν ἀθροὶ ἐκπνεύσωσιν, ὀλίγον τὸ λοιπόν; Note that λοιπόν here is the (likely correct) suggestion of Forster (1921, 166–167), based on our passage in § 36. The manuscripts of the *Problems*, however, have θερμόν: “Is it because when they blow out all at once, there is little heat?”

Furlanus (1605, 95) takes Theophrastus to be referring especially to the southern winds (i.e. Notos), based on what was said previously in *On Winds* (see §§ 5 & 7) and in the *Problems* (see 26.39 & 45).<sup>390</sup> There may be something to this. Recall § 7, where Theophrastus refers to Notos “blowing powerfully in fact when it is ceasing more than when it is beginning; because when it is beginning it thrusts away little air, though more as it advances.”

τὰ μὲν οὖν τοιαῦτα καθάπερ εἴρηται κοινὰ πως τῆς οὐσίας.

Earlier in this chapter, Theophrastus said that the signs of wind reveal τὴν τῶν πνευμάτων φύσιν. This hearkens back to the opening words of the treatise (ἡ τῶν ἀνέμων φύσις). In the same way, the reference here to the οὐσία (‘essence’) of wind hearkens back to the opening of § 2, where Theophrastus was beginning to discuss the differentiae of winds. In the context of § 36, I think these formulations are meant to indicate why Theophrastus devoted some space in this treatise to the signs of wind: because they reveal the nature of wind and are “in a way” connected to the essence of wind.

I think it clear that signs of wind count as τὰ παρακολουθοῦντα (accompanying attributes) that are not δυνάμεις (capacities).

The sentence concluding his discussion of the signs of wind contains a μὲν. It is part of a μὲν—δέ construction used as a transition (and contrast) between a discussion of the signs of wind, which are common to most winds, and the discussion (in §§ 37–46) of the particular characteristics of specific winds (and especially Zephyrus).

### *On Winds 37*

To explain what precisely Theophrastus intends to do next, I need to return to the opening chapter, where he makes the following distinction:

The nature of the winds—out of what and how and through what causes it comes to be—has been considered earlier; but it is now necessary to attempt to explain why for each of the winds the capacities and in general the accompanying attributes accompany it according to reason—the very attributes by which, by and large, each one differs from the others.

390 Aliud assert, quod plurimum est ventorum commune, et eorum praesertim, qui a longinquis partibus spirant, quales venti omnes australes, de quibus, et paulo ante et in problematis.



The general nature of wind, which involves an explanation of the causes of wind, has been discussed elsewhere. The topic of *On Winds*, by contrast, is the differentiae—the capacities and the other attributes—by which we distinguish the various winds, including the causes of those differentiae. The bulk of the treatise so far has been on precisely this, with Boreas and Notos as paradigm cases (for instance, of the difference between hot and cold in winds), and other winds occasionally mentioned to illustrate various points. Now, after a brief excursion on signs common to most winds, Theophrastus turns to examining in detail (§§ 37–46) particular winds—or one wind especially, Zephyrus.<sup>391</sup> I suspect that had this treatise been complete, it would have included lengthier accounts of many other winds, though Theophrastus does make clear why he begins with Zephyrus (which suggests perhaps that no other account would have had as much space devoted to it).

ἐστὶ δὲ τὰ καθ' ἑκάστον ἴδια κατὰ τὴν ἑκάστου φύσιν καὶ θέσιν, ὧν τὰ μὲν τοῖς τόποις μερίζεται, καθ' οὓς καὶ πρὸς οὓς αἱ πνοαί, τὰ δὲ ταῖς ἀρχαῖς ἀφ' ὧν, τὰ δ' ἄλλοις τοιούτοις.

See above (p. 262) on the μέν—δέ construction linking the end of the previous chapter, which deals with certain accompanying attributes common to most winds, and the beginning of this one, which opens with a reference to the “particular characteristics of each wind.”<sup>392</sup>

For the most part, this passage is a summary of what has been discussed before, namely: the fact that location, in many senses—location from which and over which and towards which a wind blows—will be intimately connected to or responsible for the characteristics of particular winds. What is new is the reference to *position* (θέσις). I take this to refer to the wind's position, so to speak, on the windrose—that is, its cardinal direction (north, south, east, west, or any point in between).<sup>393</sup> The direction of the wind is certainly part of its nature; so when Theophrastus says here that “The particular characteristics of each wind ... correspond to its nature and position,” I take him to mean “its nature, including its position” (which attribute has not been explicitly mentioned before, and which he mentions again only in § 44).

391 Rausch (2006): “Personification of the west wind. According to Hesiod, [Zephyrus] is the son of Astraeus and Eos and one of the three useful winds along with Boreas and Notus (Hes. *Theog.* 378–380; 869–871).” See Coppola (2010, 26–40).

392 Compare the contrast with which § 44 begins.

393 See the windrose on p. 20.

ἰδιώτατα δ' οὖν, ὥς εἰπεῖν, τὰ περὶ τὸν καικίαν καὶ τὰ περὶ τὸν ζέφυρόν ἐστιν.

I take this to mean that Zephyrus and Caecias are winds with the most unusual or unique set of characteristics, and perhaps that each of them (or Zephyrus, at any rate) differs most according to the different locations into which they blow. To put it another way, whereas Boreas and Notos are the most illustrative of winds generally—they are the paradigmatic winds—Zephyrus and Caecias are the most peculiar or idiosyncratic. (More on Zephyrus and Caecias shortly.)

Re. καικίαν: Ms. A has ἀπάρκτιαν.<sup>394</sup> The ἀπαρκτίας (a north wind, ‘from the arctic’) is referred to by Aristotle eleven times in *Mete.* 2.6 (on the different winds and their directions) and nowhere else (but cf. [Arist.] *Mu.* 4.394b29–32). It is not discussed in *On Winds*. Turnebus was right to emend the reference to it here to καικίαν (as he was in the opening of the next passage), a fact made clear by the proverb mentioned in the next line, and by the attention Caecias receives in § 39.

ὁ μὲν γὰρ καικίας μόνος ἐφ’ ἑαυτὸν ἄγει τὰ νέφη, καθάπερ καὶ ἡ παροιμία λέγει· «ἔλκων ἐφ’ αὐτὸν ὥστε καικίας νέφος».

Theophrastus contrasts the ways in which Caecias (in this line) and Zephyrus (in § 38) are peculiar. (Note the μὲν here, and the δέ in the opening of § 38.) He then discusses each wind in more detail: Caecias in § 39, and Zephyrus (much more so) in §§ 40–46. (On the possibility of transposing § 38 and § 39, see below p. 265.)

Caecias is roughly an east by northeast wind. Its name is (said to be) derived from the river Caecus/Καῖχός in Asia Minor (today known as Bakırçay).<sup>395</sup>

Caecias is peculiar or unique in that it alone “brings the cloud to itself.” What this means is made clearer in § 39. Theophrastus presents a proverb (in iambic trimeter) to support this characterization of Caecias. Note that there are in fact two ways of translating the proverb: “Drawing a cloud to himself, such as Caecias does” (cf. Coutant’s translation) or “Drawing (it) to himself, such as Caecias does a cloud” (cf. Wood’s translation). Without knowing how the proverb was used, we cannot be sure which is right. I translate it in the former

394 Note the errant accent over the first alpha. Perhaps a scribe originally thought to write ἀπ’ ἄρκτου.

395 Hünemörder (2006b): “This local wind name is supposedly derived from the river Caecus in Mysia (Ach. Tat. *Introductio in Aratum* 33, p. 68 Maas). As one of the *ánemoi katholikói* (the common winds [1. 2305]), the C., also called *Hellēspontías* (Ἑλλησποντίας) by some, was a joint wind of Boreas and Eurus ....”

manner; perhaps it meant something like the English phrase “a dark cloud over his head.” The identical proverb is quoted in two other Peripatetic texts:<sup>396</sup>

Caecias is not clear, because it bends back to itself; for which reason indeed the proverb is said: “drawing a cloud to himself, such as Caecias does.”<sup>397</sup>

ARIST. *Mete.* 2.6.364b12–14

Why does Caecias alone of the winds bring the clouds to itself, as the proverb says, “drawing a cloud to himself, just as Caecias does”?<sup>398</sup>

*Pr.* 26.29.943a32–34

Lengthier explanations of the unusual nature of this wind are provided in § 39 and in *Pr.* 26.1 & 29.

### *On Winds* 38

As I just mentioned, in § 38 Theophrastus indicates (but does not explain) the way in which Zephyrus is peculiar—in general, and especially in contrast with Caecias.

Although I ultimately decided to leave the text alone, I think a strong case could be made for transposing § 38 and § 39, which would give the following (arguably more logical) structure:

§ 37.271–274: The particular characteristics of the winds; the most idiosyncratic characteristics are associated with Caecias and Zephyrus.

§ 37.274–275: The particular characteristic of Caecias is that it brings the clouds to itself.

§ 39: Explanation of why Caecias brings the clouds to itself.

§ 38: Some of the particular characteristics of Zephyrus.

§§ 40–46: Explanation of the particular characteristics of Zephyrus.

396 See Schneider (1818, 4: 701) for a list of other occurrences of this proverb.

397 ὁ δὲ καικίας οὐκ αἰθριός, ὅτι ἀνακάμπτει εἰς αὐτόν· ὅθεν καὶ λέγεται ἡ παροιμία «ἔλκων ἐφ' αὐτόν ὥστε καικίας νέφος».

398 Διὰ τί ὁ καικίας μόνος τῶν ἀνέμων ἐφ' αὐτόν ἄγει τὰ νέφη, ὥσπερ καὶ ἡ παροιμία λέγει «ἔλκων ἐφ' αὐτόν ὥσπερ καικίας νέφος»; Cf. *Pr.* 26.1.940a18–19: “Why does the Caecias alone of the winds bring the clouds to itself?” (Διὰ τί ὁ καικίας μόνος τῶν ἀνέμων ἐφ' αὐτόν ἄγει τὰ νέφη;)

ὁ δὲ ζέφυρος λειότατος τῶν ἀνέμων· καὶ πνεῖ δειλῆς καὶ ἐπὶ τὴν γῆν καὶ ψυχρός, τῶν ἐνιαυσίων ἐν δυοῖν μόνον ὥραις ἐάρος καὶ μετοπώρου.

What is peculiar about Zephyrus—we find out over the whole of § 38—is its variations. It is the smoothest (λειότατος) of the winds—which I assume means calm and even—but it can also be destructive.

In this opening passage, Theophrastus points out that the wind is the smoothest, and then gives some other general details: when it blows (in spring and autumn, and only in the afternoon), where it blows (towards or onto land), and its temperature (it blows cold).

There is one significant textual issue. Ms. A reads δειλῶς ('cowardly'), which one might try to interpret as 'timidly'—but that's a stretch and in any case would seem to be redundant with λειότατος. There are two emendations worth considering, as each fits the context well, improves the sense of the line, and involves a change of only one letter: The Aldine edition prints δεινῶς (Zephyrus blows *terribly*),<sup>399</sup> Bonaventura (1593, 172–173) suggests δειλῆς (blows *in the afternoon*). Given what Theophrastus goes on to say about Zephyrus, δεινῶς is not impossible (and the change from -ν- to -λ- is a relatively common scribal error); but Bonaventura is right that § 41 (his Text 40) and *Pr.* 26.35a both support δειλῆς.<sup>400</sup> Moreover, Theophrastus is here presenting the nature of Zephyrus generally or for the most part (it is smoothest, etc.); the more occasional, 'terrible' characteristics will be described shortly (though ψυχρός is arguably part of what makes it a terrible wind).

As noted by Buchanan (1978, 401), Coutant fails to translate καὶ ψυχρός.

πνεῖ δ' ἐνιαχοῦ μὲν χειμέριος, ὅθεν καὶ ὁ ποιητῆς δυσαῆ προσηγόρευσεν, ἐνιαχοῦ δὲ μετρίως καὶ μαλακῶς. διὸ καὶ Φιλόξενος ἠδεῖαν αὐτοῦ πεποίηκε τὴν πνοήν.

Having described Zephyrus as the smoothest of winds, Theophrastus now presents the aforementioned contrast. In some places this wind is stormy or wintery,<sup>401</sup> in other places moderate and soft. He supports this with poetical ref-

399 Similarly, Turnebus suggests δεινός.

400 See § 41.293: τῆς δειλῆς ἢ πνοῆς διὰ τὸν τόπον ("the blowing is in the afternoon, because of the location"). *Pr.* 26.35a opens: Διὰ τί ὁ ζέφυρος τῆς δειλῆς πνεῖ; ("Why does the Zephyr blow in the afternoon?")

401 One could translate πνεῖ ἐνιαχοῦ χειμέριος "in some places it blows *in winter*"; but 'stormy' or 'wintery' is a better fit, especially as this is contrasted with its blowing μετρίως καὶ μαλακῶς.

erences: Homer (“the poet”) called Zephyrus ill-blowing;<sup>402</sup> Philoxenus called it sweet.<sup>403</sup>

That Zephyrus was considered the mildest and most pleasant wind was a subject of interest among Peripatetics, as is clear from three *problemata*.<sup>404</sup> Note first the opening of these two:

*Pr.* 26.31.943b21–22: Why is Zephyrus thought to be gentle and the most pleasant of the winds, and for instance even Homer says that in the Elysian Field “always the breezes of Zephyrus are blowing”?<sup>405</sup>

*Pr.* 26.55.946b21–22: Why is Zephyrus thought to be gentle and the most pleasant of the winds?<sup>406</sup>

In another *problema*, however, the concern is its contrasting characteristics:

*Pr.* 26.52.946a17–19: Why is Zephyrus both the mildest of the winds *and* cold, and why does it blow mostly in two seasons—spring and autumn—and towards evening, and mostly on land?<sup>407</sup>

402 *Il.* 23.200 (ζεφύροιο δυσαέος), *Od.* 5.295 (ζέφυρός ... δυσαής), *Od.* 12.289 (ζεφύροιο δυσαέος). LSJ (s.v. δυσαής): δυσ- + ἄημι.

403 Coutant & Eichenlaub (1975, 81) write “Philoxenus: not otherwise known.” Longrigg (1978a, 113) makes a good case for the poet Philoxenus of Cythera (ca. 435–380) (cf. Bonaventura 1593, 173: *Philoxenum fortasse Dythirambicum poetam intelligit*). But later that year—based on the discovery of the tomb of Philip (11 or 111) of Macedon, confirming Hammond’s identification of Aegeae with Vergina—Longrigg (1978b, 425–426) suggested another candidate: the painter Philoxenus of Eretria, who “Theophrastus might even have actually met ... at the Macedonian royal court.” But surely a poet is a better fit here than a painter. The Peripatetic Phaenias (ca. 375–300) wrote about two Philoxenoi: the poet Philoxenus of Cythera (*Athen.* 1.6E–7A = fr. 17 Engels) and a Philoxenus who rose from being a fisherman to become a demagogue and then a tyrant (*Athen.* 3.90E–F = fr. 19 Engels).

404 On the close connection between *On Winds* and *Pr.* 26 on Zephyrus, see Mayhew (2015, 303–309).

405 Διὰ τί ὁ ζέφυρος εὐδαινὸς καὶ ἡδιστος δοκεῖ εἶναι τῶν ἀνέμων, καὶ οἶον καὶ Ὅμηρος ἐν τῷ Ἥλυσίῳ πεδίῳ, «ἀλλ’ αἰεὶ ζεφύροιο διαπνεύουσιν ἄηται»; Cf. *Od.* 4.567: ἀλλ’ αἰεὶ ζεφύροιο λιγὺ πνεύοντος ἄητας.

406 Διὰ τί ὁ ζέφυρος εὐδαινὸς καὶ ἡδιστος δοκεῖ εἶναι τῶν ἀνέμων; *Pr.* 26.55 ends: “it justly is and is thought to be pleasant” (δικαίως ἡδὺς ἐστὶ καὶ δοκεῖ εἶναι) (946b29–31).

407 Διὰ τί ὁ ζέφυρος λειότατός τε τῶν ἀνέμων καὶ ψυχρός, καὶ δύο ὥρας πνεῖ μάλιστα, ἔαρ τε καὶ μετόπωρον, καὶ πρὸς ἑσπέραν τῆς ἡμέρας, καὶ ἐπὶ τὴν γῆν μάλιστα;

Two noteworthy textual issues: (1) Following ὁ ποιητής, ms. A has αὔσαι (aorist infinitive of αὔω, ‘shout’), which makes no sense. One can imagine αὔσαι being a corruption of αὔραι (‘breezes’), but that does not fit either. The correction to δυσαῆ by a second hand in ms. B (who may have known his Homer better than the previous scribes) ought to be accepted. (2) Following Φιλόξενος, ms. A has ἰδίαν, which makes sense grammatically: “this is why Philoxenus rendered Zephyrus’ blowing *peculiar*.” But I accept, with Bonaventura and editors since, the reading of Aloysius Lollinus (who was or would become Bishop of Belluno): ἡδεῖαν.<sup>408</sup> This reading is supported by *Pr.* 26.31 & 55 (just quoted).

τοῖς μὲν ἐκτρέφει, τοῖς δ’ ἀποκλείει καὶ διαφθείρει τελείως.

It seems that this line, with which § 38 ends, is meant to illustrate the contrast between the attributes of Zephyrus: it nourishes (something) in some locations or for some people, but does something else entirely in or for others. Going beyond this, however, is somewhat speculative.

This line has been thoroughly emended by editors—more than I think is necessary. I indicate with italics the words that have been replaced: τοῖς μὲν ἐκτρέφει, τοῖς δ’ ἀποκλείει καὶ διαφέρει τελείως. The three most recent editors replace the italicized words (following suggestions of Turnebus and Furlanus<sup>409</sup>) as follows: τοὺς μὲν ἐκτρέφει, τοὺς δ’ ἀπολλύει καὶ διαφθείρει τελείως. They then insert additional text at the beginning of the sentence: καὶ τῶν καρπῶν (Schneider and Wimmer) or καὶ τοὺς καρπούς (Coutant). Two comments: (1) I would be surprised if Theophrastus wrote both ἀπολλύει and διαφθείρει (with τελείως!): “kill and destroy completely.” Overkill, to be sure. If one thinks an emendation to ἀποκλείει καὶ διαφέρει τελείως is necessary, I recommend replacing one of these words (following the above suggestions) but keeping the other: ἀποκλείει καὶ διαφθείρει (“precludes and so destroys”) or ἀπολλύει καὶ διαφέρει (“kills and so differs”). The former is the one emendation that I in the end decided to accept.<sup>410</sup> (2) Rather than adding καὶ τοὺς καρπούς or καὶ τῶν καρπῶν at the beginning, I would recommend the following, less intrusive, alteration (were I to emend this at all): τοὺς μὲν (καρπούς) ἐκτρέφει, τοὺς δ’ κτλ., where τοὺς

408 Bonaventura (1593, 174): *Aloysius Lollinus vir doctissimus arbitratus est legendum esse ἡδεῖαν.*

409 Furlanus replaced τοῖς with (καὶ τῶν καρπῶν) τοὺς and τοῖς δ’ ἀποκλείει with τοὺς δ’ ἀπολλύει, and Turnebus replaced διαφέρει with διαφθείρει.

410 Gigon’s suggestion (ἀποκαίει for ἀπολλύει) is worth considering. On the use of ἀποκαίω (‘burn off’) to refer to intense cold causing damage (cf. ‘freezer burn’), see § 45 and my commentary (p. 294).

μέν—τοὺς δέ has the sense of ‘some ..., but others’: “It nourishes some (crops), but others it” etc. Cf. e.g. *HP* 3.2.5 (ἔτι δὲ τοὺς μὲν κοίλους καὶ εὐδαινοὺς τοὺς δὲ μετεώρους καὶ προσηγέμους) and *CP* 5.1.9 (οὐ γὰρ ἅμα πάντα, ἀλλὰ τοὺς μὲν πρότερον φέρουσι, τοὺς δὲ μικρῷ πρὸ τῶν ἐρινῶν). Nevertheless, I think it best to leave τοῖς μὲν—τοῖς δ’ alone. With the one change indicated (διαφθείρει for διαφέρει), I translate the last line “For some (people) it is nourishing, but for others it precludes (nourishment) and so is completely destructive.” One could alternatively replace ‘people’ as the implicit subject with ‘crops’.<sup>411</sup>

Re. crops and Zephyrus in Theophrastus’ botanical writings: *HP* 3.4.2 lists a number of trees (many of them fruit trees) that grow just before or just after Zephyrus begins to blow.<sup>412</sup> The subject of *CP* 5.12.4–11 is the effect of cold wind on trees. Zephyrus is never mentioned in this section, which however does begin: “Blasting winds blow, at least in the locations around Greece, from the west” (lit. from the setting [of the sun]) etc. (πνεῖ δὲ τὰ πνεύματα (τὰ) ἀποκαίοντα περὶ γε τοὺς κατὰ τὴν Ἑλλάδα τόπους ἀπὸ δυσμῶν κτλ.).

### On Winds 39

Theophrastus returns here to discussing Caecias, to explain its particular or peculiar characteristic. (See above, p. 265, on the possibility of transposing §§ 38 and 39.)

αἴτιον δὲ τῷ μὲν καικίᾳ διότι πέφυκε κυκλοτερεῖ φέρεσθαι γραμμῇ, ἥς τὸ κοῖλον πρὸς τὸν οὐρανὸν καὶ οὐκ ἐπὶ τὴν γῆν ἐστίν, ὥσπερ τῶν ἄλλων, διὰ τὸ κάτωθεν πνεῖν.

Whereas other winds tend to travel in a curved path (roughly) parallel to the Earth (i.e. the curve or concavity of the arc of their path is facing the Earth), Caecias “naturally” travels in a circular line effectively in tangent with the curvature of the Earth, thus circling back to itself, bringing anything it moves to

<sup>411</sup> In a case described in *Hp. Epid.* 7.1.98, Zephyrus seems to cause or exacerbate some illness. And see below, note 450.

<sup>412</sup> Cf. *Hom. Od.* 7.117–119:

Fruit on these (trees) never spoils nor fails,  
neither winter nor summer, but is annual. And always  
Zephyrus blowing grows some (fruit), and ripens others.  
τάων οὐ ποτε καρπὸς ἀπόλλυται οὐδ’ ἀπολείπει  
χείματος οὐδὲ θέρεως, ἐπετήσιος· ἀλλὰ μάλ’ αἰεὶ  
ζεφυρίη πνεῖουσα τὰ μὲν φύει, ἄλλα δὲ πέσσει.

itself (i.e. to or towards its location of origin, as is made clear in the remainder of § 39). So, whereas most winds push clouds forward, Caecias alone does the opposite. This is how *On Signs* 36 describes it: “And the other winds push the clouds from themselves, whereas Caecias alone blows them to itself.”<sup>413</sup>

It is somewhat unclear why Theophrastus says (or what he means by saying) both that Caecias blows from below (κάτωθεν) *and* that the curve or concavity of its path is facing the sky. The two chapters of *Pr.* 26 which discuss Caecias (1 & 29) seem to disagree about the direction of this wind. *Pr.* 26.29 is in agreement with Theophrastus: “The other winds therefore blow around the earth, but the curve of the line of this wind is towards the sky and not to the earth”<sup>414</sup> (943a37–b2). The author of *Pr.* 26.1, however, seems to have a different account:<sup>415</sup> “Is it because it blows from higher regions? ... Now blowing from above to the opposite direction, it describes by its movement a line having curves towards the earth”<sup>416</sup> (940a19–23).

Two comments on the text: (1) The minor change suggested by the second hand in ms. B makes sense: ἥς (“the curve *of which*”) in place of ms. A’s εἰς (“to the curve”). (2) I follow other editors in accepting Bonaventura’s emendation (1593, 174) of ms. A’s οὐ περὶ (“not around the Earth”) to οὐκ ἐπὶ (“not to the Earth”). He relied on the parallel text in *Pr.* 26.29: πρὸς τὸν οὐρανὸν καὶ οὐκ ἐπὶ τὴν γῆν (“towards the sky and not to the Earth”) (943b1–2). Note that in the preceding line the text of *Pr.* 26.29 reads οἱ μὲν οὖν ἄλλοι περὶ τὴν γῆν πνέουσιν (“The other winds therefore blow *around* the Earth”) (943a37). Perhaps there was originally some such line in § 39, which led to an error in ms. A (οὐ περὶ).

413 καὶ οἱ μὲν ἄλλοι ἄνεμοι ἀφ’ ἑαυτῶν τὰ νέφη ὠθοῦσι, καικίας δὲ μόνος πνέων ἐφ’ ἑαυτόν. Earlier in *Sign.* 36, the author says that the Caecias is one of the two wettest winds and the wind that most produces clouds.

414 οἱ μὲν οὖν ἄλλοι περὶ τὴν γῆν πνέουσιν· τούτου δὲ τὸ κοῖλον τῆς γραμμῆς πρὸς τὸν οὐρανὸν καὶ οὐκ ἐπὶ τὴν γῆν ἐστίν.

415 See Coutant & Eichenlaub (1975, 81 n. 2): “But *Prob.* 26, 1 has it blowing from above with its curvature toward the earth.”

416 ἢ ὅτι ἀφ’ ὑψηλοτέρων τόπων πνεῖ; ... πνέων δὲ ἄνωθεν εἰς τοῦναντίον γραμμὴν ποιεῖ τῇ φορᾷ τὰ κοῖλα πρὸς τὴν γῆν ἔχουσιν. I now regret that in my *Loeb Problems* (Mayhew 2011, 2: 158–159) I followed Flashar in inserting τὸν οὐρανὸν καὶ οὐκ ἐπὶ into the text, so that it reads “having curves towards (the sky and not to) the earth.”



πνέων δ' ἐπὶ τὴν ἀρχὴν (καὶ ἄνωθεν), οὗτος δ' ἐφ' αὐτὸν ἄγει τὰ νέφη. πρὸς δ' γὰρ ἡ πνοὴ καὶ τῶν νεφῶν ἐντεῦθεν φορά.

As it stands, this is merely making explicit what has been established so far: that “bringing the clouds to itself” (in the language of the proverb) refers to Caecias circling back and moving clouds towards its source or location of origin, rather than pushing them forward as happens with other winds. Perhaps a bit more was conveyed in the original line, which is now not fully recoverable owing to the approximately 10-letter lacuna following τὴν ἀρχὴν.

This lacuna is the only significant textual issue here: Every editor from Aldus to Heinsius indicated the lacuna in their printed text, whereas Schneider, Wimmer, and Coutant all follow Turnebus' emendation, which removes the lacuna and makes two further changes: ἀρχὴν οὕτως [δ'] (“blowing to its *source in this way*”) for ἀρχὴν (*lac.*) οὗτος δ'. But I suggest filling the lacuna with καὶ ἄνωθεν (which is good conceptually, and the perfect length) and leaving the rest alone: ἀρχὴν (καὶ ἄνωθεν), οὗτος δ' (“blowing to its source (and from above), this (sc. wind), however” etc.).<sup>417</sup> In the previous passage, Caecias is said to begin “from below” (κάτωθεν). My suggestion is that blowing to its source from above completes the circular path of Caecias.

One minor issue: Inserting ἡ before φορά, as suggested by Schneider, arguably improves the text but is in fact unnecessary: “a movement” works as well as “(the) movement.”

### *On Winds* 40

Theophrastus now begins the longest continuous discussion of one wind: §§ 40–46, on Zephyrus.<sup>418</sup> In § 40, he briefly discusses two characteristics of Zephyrus: that it is cold (ψυχρός), and that it is not continuous (οὐ συνεχής).

ὁ δὲ ζέφυρος ψυχρὸς μὲν διὰ τὸ πνεῖν ἀφ' ἐσπέρας ἀπὸ θαλάττης καὶ πεδίων ἀναπεπταμένων καὶ ἔτι μετὰ χειμῶνα τοῦ ἡρος, ἄρτι τοῦ ἡλίου κρατοῦντος, καὶ μετοπώρου πάλιν, ὅτ' οὐκέτι κρατεῖ.

There are two clear reasons why Zephyrus is a cold wind, related to where it blows from and when (during the year) it blows: (1) It blows from over the

<sup>417</sup> Gigon recommended filling the lacuna with καὶ πρὸς τὰ ἄνω.

<sup>418</sup> Of the 63 chapters in *Pr.* 26, Zephyrus is mentioned in ten of them. Six of these (24, 31, 33, 35a, 52, 55) have some connection to or parallels in *On Winds* §§ 38 & 40–46. See Mayhew (2015, 303–309).

open sea (to the west) and thus over water, which tends to cool. (2) It blows (a) “after winter in spring,” which I take to mean *right* after winter, at the very beginning of spring, before the temperature has heated up completely—as Theophrastus puts it, when the sun is just gaining mastery—and (b) in autumn, when the sun no longer has mastery (which implies that it blows not at the beginning of autumn, just after summer, but at that point into the season when the sun no longer has mastery).

Re. *πεδίων ἀναπεπταμένων*: It is unclear (1) what these open plains are, and (2) why blowing over them causes Zephyrus to be cold. As for (1), since the Zephyrus begins in the Atlantic and blows over the Mediterranean, I would think that the “open plains” would refer either to the land masses Zephyrus encounters between the Atlantic Ocean and the Greek mainland (especially the Iberian and Italian peninsulas), or to the fact that once it reaches the Greek mainland, there are no mountains or other geological features that alter its character (in this case, its temperature). As for (2), in § 3 (and elsewhere) Theophrastus claims that in contrast to wind travelling through an open space, wind “traveling through a narrow passage and so more intensely is colder.” Perhaps the point is that by blowing over the plains, its temperature coming off of the sea (namely, cold) is not altered, though if it were blowing through narrow terrain, e.g. mountain passes, it would become even colder. Or perhaps *πεδίων ἀναπεπταμένων* is the remnant of a phrase explaining why it is cold *despite* blowing over an open plain. Finally, a more radical conjecture would be to change *πεδίων ἀναπεπταμένων* to *πελάγους ἀναπεπταμένου* (see § 42).

τοῦ (δέ) βορέου ἥττον ψυχρὸς διὰ τὸ ἀφ’ ὕδατος πνευματουμένου καὶ μὴ χιόνος πνεῖν.

This line is an addendum of sorts to the previous passage: Although Zephyrus is a cold wind, it is not as cold as the paradigm cold wind, Boreas. The reason is that Boreas blows ‘from’ snow, Zephyrus ‘from’ water. Why not say: because Boreas blows from the north, Zephyrus from the west? That is in effect what he is saying: The (far) north (from which Boreas blows) is colder than the west, and one important way in which this manifests itself is in there being snow in the north and water in the west. (I assume that the different ambient temperatures matter as well.)

It is unclear what the significance is of Theophrastus specifying that Zephyrus blows not simply from water but “from evaporating water.” Coutant & Eichenlaub (1975, 82) write: “The west wind, blowing off vaporizing water, moves under its own power, not subjected to the strict control of the sun.” This could be the point: Whereas Boreas and Notos are the direct result of the sun pushing air (see §§ 2 & 10), Zephyrus is not, blowing rather out of evaporations

or exhalations. Recall §15: “Now if the generation of all winds is the same and for the same reasons ..., the sun would be the producer. Yet perhaps this is not true speaking universally, but rather that exhalation is the producer, and the sun is as it were a co-worker.” Using this language, in the case of Zephyrus the sun is a co-worker, in causing the evaporation of water, but the exhalation is more the producer of the wind. And this too is related to temperature, in that snow is significantly colder than evaporating water (though the latter is still cold).

οὐ συνεχῆς δὲ διὰ τὸ μὴ κρατεῖσθαι τὸ γινόμενον πνεῦμα· οὐ γὰρ ὥσπερ ἐν γῇ  
(ὑπομένει τὴν εἶλην), ἀλλὰ πλανᾶται διὰ τὸ ἐφ’ ὑγροῦ βεβηκέναι.

At this point, §40 becomes even more problematic—especially when read in connection with *Pr.* 26.52, a text to which it is clearly related.<sup>419</sup> *Pr.* 26.52 opens by asking: “Why is Zephyrus both the mildest of the winds and cold, and why does it blow mostly in two seasons—spring and autumn—and towards evening, and mostly on land?”<sup>420</sup> The remainder of this long chapter is taken nearly verbatim from §§ 40–41. Here is the portion of *Pr.* 26.52 relevant for our purposes:

ἢ ψυχρὸς μὲν διὰ τὸ πνεῖν ἀπὸ τῆς θαλάττης καὶ πεδίων ἀναπεπταμένων;  
ἦττον μὲν οὖν ψυχρὸς τοῦ βορέου διὰ τὸ ἀφ’ ὕδατος πνευματουμένου καὶ μὴ  
χιόνος πνεῖν, ψυχρὸς δὲ διὰ τὸ μετὰ χειμῶνα, ἄρτι τοῦ ἡλίου κρατοῦντος, πνεῖν,  
καὶ μετοπώρου, ὅτ’ οὐκέτι κρατεῖ ὁ ἥλιος. οὐ γὰρ ὥσπερ ἐν γῇ ὑπομένει τὴν  
εἶλην/ῦλην,<sup>421</sup> ἀλλὰ πλανᾶται διὰ τὸ ἐφ’ ὑγροῦ βεβηκέναι.<sup>422</sup>

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419 *Pr.* 26.52 consists of three parts: (1) an opening question that does not match perfectly what follows it, as what follows does not answer all of (and only) that complex question; (2) a section virtually identical to §40; and (3) a section virtually identical to §41. See Mayhew (2015, 307–308).

420 Διὰ τί ὁ ζέφυρος λειότατός τε τῶν ἀνέμων καὶ ψυχρὸς, καὶ δύο ὥρας πνεῖ μάλιστα, ἔαρ τε καὶ μετόπωρον, καὶ πρὸς ἑσπέραν τῆς ἡμέρας, καὶ ἐπὶ τὴν γῆν μάλιστα;

421 εἶλην Y<sup>a1</sup> : ὕλην Ap Y<sup>a2</sup> : ὕλην cett. codd. As ὕλην (‘troop’) makes no sense, an editor must choose between εἶλην (‘sun’s heat’) and ὕλην (‘matter’).

422 “Is it cold because it blows from the sea and wide open plains? Now it is less cold than Boreas because it blows from evaporated water and not from snow, but it *is* cold because it blows after winter, when the sun is just achieving mastery, and in autumn, when the sun no longer has mastery. For it does not await the sun’s heat [or ‘the matter’] (εἶλην/ὕλην), as if it were on land, but it wanders because it has gone over water.”

Compare this to the text of § 40, as found in ms. A:

ὁ δὲ ζέφυρος ψυχρὸς μὲν διὰ τὸ πνεῖν ἀφ' ἐσπέρας ἀπὸ θαλάττης καὶ πεδίων ἀναπεπταμένων καὶ ἔτι μετὰ χειμῶνα τοῦ ἥρος, ἄρτι τοῦ ἡλίου κρατοῦντος, καὶ μετοπώρου πάλιν, ὅτ' οὐκέτι κρατεῖ. τοῦ βορέου ἥττον ψυχρὸς διὰ τὸ ἀφ' ὕδατος πνευματουμένου καὶ μὴ χιόνος πνεῖν. οὐ συνεχῆς δὲ διὰ τὸ μὴ κρατεῖσθαι τὸ γινόμενον πνεῦμα· οὐ γὰρ ὥσπερ ἐν γῇ, ἀλλὰ πλανᾶται διὰ τὸ ἐφ' ὑγροῦ βεβηκέναι.

Note that *Pr.* 26.52 continues καὶ ὁμαλὸς διὰ τὸ αὐτό (“And it is steady for the same reason”), while *On Winds* continues (at the opening of § 41) καὶ ἐφ' ὁμαλῆς διὰ τοῦτο ἐστίν (emended to καὶ [ἐφ'] ὁμαλὸς διὰ τοῦτο ἐστίν). (More on this below, in my commentary on § 41.)

Now there are two major differences between the relevant portions of *Pr.* 26.52 and § 40 (marked in italics in the above quotes): (1) The clause in § 40 (οὐ συνεχῆς κτλ.) is completely missing from *Pr.* 26.52, such that what follows (ὥσπερ ἐν γῇ κτλ.) is still part of an explanation of why Zephyrus is cold, whereas in § 40 it is part of an explanation of why Zephyrus is not continuous. (2) Where *Pr.* 26.52 has ὥσπερ ἐν γῇ ὑπομένει τὴν εἰλην/ῦλην, § 40 has merely ὥσπερ ἐν γῇ (and as such appears incomplete).

Re (1): I take this comparison to show that οὐ συνεχῆς κτλ. was (in some form) likely original to *On Winds*, but dropped out of *Pr.* 26.52.<sup>423</sup> It is not, however, obvious how ὥσπερ ἐν γῇ κτλ. functions as an explanation of οὐ συνεχῆς κτλ. (which perhaps led to its being excised by the author or compiler of *Pr.* 26), which leads me to conclude that part of the explanation of Zephyrus not being continuous is missing. Now one might take *Pr.* 26.52 as evidence that οὐ συνεχῆς κτλ. is out of place in § 40 and so ought to be bracketed. But retaining the line gets further support from the order of presentation of the attributes earlier in *On Winds*: “and continuous and regular, or intermittent [i.e. not continuous] and irregular” (καὶ συνεχεῖς καὶ ὁμαλεῖς ἢ διαλείποντας καὶ ἀνωμαλεῖς, § 1); “and continuous (or not) and irregular or regular” (καὶ συνεχῆς καὶ ἀνωμαλῆς καὶ ὁμαλόν, § 4). As indicated, both *On Winds* (in § 41) and *Pr.* 26.52 turn next to why Zephyrus is ὁμαλὸς (regular). It makes sense to think that this was preceded by a discussion of whether or not it was continuous. But it seems this discussion has dropped out completely (or was purposely left out) of the discussion in *Pr.* 26.52, though it remained (in an incomplete state) in *On Winds*. (See also below on the opening of § 41.)

423 The text of *Pr.* 26.52 is for the most part superior to the corresponding passages in *On Winds*.

Re (2): ὥσπερ ἐν γῇ on its own in § 40 makes no sense—neither conceptually nor arguably grammatically—but *Pr.* 26.52 provides the solution: ἐν γῇ ὑπομένει τὴν εἴλην (or ὕλην, see Forster 1921, 167). I prefer εἴλην, and so emend the text as suggested by Coutant.<sup>424</sup>

The ‘continuity’ passage in § 40 thus reads: “And it is not continuous, because the flow of air as it comes to be is not mastered; for it does not ⟨await the sun’s heat⟩ as if it were on land, but it wanders because it has gone over water.” The middle πλανᾶται, though an odd choice, perhaps conveys ‘wanders or moves around of its own accord’, thus supporting Coutant & Eichenlaub’s interpretation (quoted above) that Zephyrus “moves under its own power” and not directly because of the sun. Zephyrus is not continuous because as it comes to be it is not mastered by the sun. But why this failure to be mastered by the sun causes a wind to be not continuous but intermittent is unclear. Perhaps the point is that winds like Boreas and Notos—directly caused by the sun-pushed air with much force and without pause (during the day)—produces winds that are continuous, whereas winds that blow from evaporating air tend to be intermittent. But much remains unclear.

### *On Winds 41*

This chapter is devoted to explaining two attributes of Zephyrus: that it is regular or even or steady (ὁμαλός), and that it blows in the afternoon and stops at night. The text is in terrible shape, and I follow Bonaventura (1593, 179–181) and others in using the relevant portion of *Pr.* 26.52 to emend it.

καὶ [ἐφ’] ὁμαλὸς διὰ τοῦτο ἐστίν.

Theophrastus indicates the next attribute to be discussed (regularity), while stating that Zephyrus is regular “because of this.” It is clear in what follows that he is referring to the fact that Zephyrus blows over the sea and not over certain kinds of land.

As I mentioned in the previous section, I have emended ms. A’s ἐφ’ ὁμαλῆς to [ἐφ’] ὁμαλός, based on the parallel line in *Pr.* 26.52 (as first proposed by Bonaventura 1593, 179). Wimmer prints καὶ λείος after τοῦτο, unnecessarily.

<sup>424</sup> Buchanan (1978, 401) complains that Coutant is guilty of “an unwarranted tampering of the text” in printing εἴλην rather than ὕλην. But this would be tampering with the text only if ὕλην were the reading of ms. A; and it would be unwarranted only if there were no grounds for choosing εἴλην over ὕλην. Neither is the case.

οὐ γὰρ [βορίαν καὶ νότον πρὸς ἐσπέραν δ' οὐκ ἕτερος οὐδέ τις ἐστί] (ἀπ' ὀρέων πνεῖ οὐδὲ βίᾳ τηκομένου, ἀλλὰ ῥαδίως) (ὥς) περ δι' αὐλοῦ ῥέων.

In ms. A, οὐ γὰρ is followed by a lacuna of about five letters, and then the words βορίαν καὶ νότον πρὸς ἐσπέραν δ' οὐκ ἕτερος οὐδέ τις ἐστί (which are repeated verbatim, minus ἐστί, one line later), and then another lacuna of two or three letters, followed by περ. So something is seriously wrong with the text. Aldus simply omitted the entire line, from οὐ γὰρ to τις ἐστί, but that is too excessive and unnecessary. I follow Coutant in bracketing the repeated material (with the ἐστί), as that line makes more sense where it appears the second time (see the next passage, below, and *Pr.* 26.52). Still, it is not enough simply to remove the line; what is needed is additional material, and this is available in the parallel passage in *Pr.* 26.52.<sup>425</sup> And clearly, the scribe of ms. V<sup>a</sup> was right to change lacuna + περ to ὥσπερ.

So emended, and as in *Pr.* 26.52, the passage is saying that Zephyrus is regular because it does not blow from the mountains nor from melted snow, but from over the sea. As such it flows “easily,” as if it were air flowing through an *aulos* or pipe.<sup>426</sup> The flowing easily, versus by force, fits the idea of Zephyrus ‘wandering’ (recall the end of § 40); wandering, however, does not match, but in fact contradicts, the idea of flowing through a pipe.

On melting snow as a cause of irregularity in wind, see § 12.

τὰ μὲν γὰρ πρὸς βορέαν καὶ νότον (ὀρεινά)· πρὸς ἐσπέραν δ' οὔτε ὄρος οὔτε γῆ ἐστίν, ἀλλὰ τὸ Ἀτλαντικὸν πέλαγος, ὥς(τε) ἐπὶ τῆς γῆς φέρεται.

After the initial words τὰ μὲν γὰρ πρὸς, the line bracketed in the previous passage reappears here. Though a better fit, there are still problems with it, and the solution is again to be found in *Pr.* 26.52. Compare the text of (1) ms. A and (2) *Pr.* 26.52. (There are no lacunae in either text; I have added spaces to make the differences between them clearer.)

425 The relevant line is: οὐ γὰρ ἀπὸ ὀρέων πνεῖ, οὐδὲ βίᾳ τηκομένου, ἀλλὰ ῥαδίως ὥσπερ δι' αὐλῶνος ῥέων (946a26–27). Turnebus and Bonaventura suggest changes to δι' αὐλοῦ ῥέων based on this text in in *Pr.* 26.52.

426 The *aulos* is a musical instrument, like an oboe. I retain δι' αὐλοῦ because I have tried to replace the paradosis with what appears in *Pr.* 26.52 only where necessary. I should mention, however, that one might consider reading δι' αὐλῶνος (‘through a channel/strait/pipe’) for δι' αὐλοῦ.

- (1) τὴν μὲν γὰρ πρὸς βορέαν καὶ νότον πρὸς ἐσπέραν δ' οὐκ ἕτερος οὐδέ τις  
ἐστίν
- (2) τὰ μὲν γὰρ πρὸς βορέαν καὶ νότον ὀρεινά· πρὸς ἐσπέραν δ' οὔτε ὄρος οὔτε γῆ  
ἐστίν

I believe that wherever there is a difference, the text of *Pr.* 26.52 is superior and ought to be accepted. Thus I follow Wimmer in simply replacing the former with the latter.<sup>427</sup>

The purpose of this line seems to be to confirm the brief explanation in the preceding passage. Theophrastus does not elsewhere connect blowing through mountains with irregularity—though that is certainly implied here—nor does he discuss the irregularity of Boreas and Notos winds.<sup>428</sup> Perhaps the idea is connected to the claim that blowing through narrow passages (through valleys and high mountain passes) produces violent and vigorous winds (see §§ 3, 20, 29), which (one would have to suppose) are by their nature irregular. Note that § 42 opens its discussion of Zephyrus by pairing regularity and softness or mildness (ἡ ὁμαλότης καὶ λειότης).

Gigon recommends replacing ἐπὶ τῆς γῆς with ἐφ' ὁμαλοῦς.

τῆς (δε) δειλῆς ἢ πνοῇ διὰ τὸν τόπον. πάντα γὰρ μετὰ τοῦ ἡλίου διαχέοντος τὸ ὑγρὸν ἢ ἀτμίζοντος γίνεται ἢ συνεργούντος εἰς τὴν ἀρχήν.

We *seem* to encounter a text about Zephyrus that is in relatively good shape and an explanation that is relatively clear (however incomplete). But things are not quite what they seem.

Zephyrus blows in the afternoon because of the location (sc. of its origin): the west. Unlike Boreas and Notos, which blow because the sun pushes the air it encounters north and south,<sup>429</sup> like sea breezes (but more powerful) the source of Zephyrus is vapor from the sea, produced when the sun is near—i.e. near the west, i.e. in the afternoon (from the perspective of people in Greece, of course).

The πάντα refers to all winds, not to every Zephyrus, as the latter must all have the same cause: “all *winds* come with the sun dispersing or vaporizing the

427 The final emendation also corresponds to the text of *Pr.* 26.52: Turnebus' ὥστε for ms. A's ὡς.

428 In fact, in § 6 he says that Notos in the far south, e.g. around Egypt, “produces what is more dense and waveless and continuous *and regular*.” Perhaps that is exceptional for Notos.

429 As the sun moves in the opposite direction of the movement of the Zephyr, the sun pushing air cannot account for its movement.

moisture or assisting at the beginning.”<sup>430</sup> This is an unusual double disjunctive, and I suspect something has become garbled. Recall the opening of § 15:

Now if the generation of all winds is the same and for the same reasons ..., the sun would be the producer (ὁ ἥλιος ἂν ὁ ποιῶν εἴη). Yet perhaps this is not true speaking universally, but rather that exhalation (ἡ ἀναθυμίασις) is the producer, and the sun is as it were a co-worker (συνεργῶν).

So here in § 41, I would have expected Theophrastus to say that all winds come either (1) with the sun, as producer, dispersing (or better, pushing) *the air*, as in the case of Boreas and Notos, or (2) with the sun vaporizing moisture and thus cooperating or assisting in its getting started (with the exhalation or vapor being the main cause or producer)—which is what happens in the case of Zephyrus. So I would speculate that the original may have had something like the following: πάντα γὰρ μετὰ τοῦ ἡλίου διαχέοντος τὸν ἀέρα ἢ ἀτμίζοντος τὸ ὑγρὸν γίνεται καὶ<sup>431</sup> συνεργούντος εἰς τὴν ἀρχήν. But as this is mere speculation, I have left the text intact—especially given that the corresponding line in *Pr.* 26.35a (see below) has διαχέοντος τὸ ὑγρὸν γίνεται alone (i.e. it omits ἢ ἀτμίζοντος and ἡ συνεργούντος κτλ.), though this could be a sign of even further corruption.

What is missing is the mechanism by which the vaporized water of the Atlantic generates wind moving *from west to east*, as a result of the sun producing vapor as it proceeds east to west. Perhaps as the sun approaches, it begins to heat a portion of the sea before it arrives directly above, and as a result of this the vapor is drawn upward but also in the direction from which the sun is coming—i.e. eastward—and the accumulation of such upward and eastward vapors becomes Zephyrus.

Unfortunately, the three *problemata* that discuss when during the day Zephyrus blows (*Pr.* 26.33, 35a, 52) do not help to explain why it blows from west

430 Re. συνεργούντος εἰς τὴν ἀρχήν: I take συνεργέω + εἰς + accusative to mean “assisting or helping at the time of or on the occasion of,” and so here “assisting at the beginning.” Cf. εἰς τὰς εὐτυχίας συνεργούντα (Arist. *EN* 9.11.1171b23): “helping in times of good fortune.” Bonaventura (1593, 181) writes *quod συνεργούντος εἰς τὴν ἀρχήν dixit: scire calidam partem exhalationis principium venti vocans*. Is this not the same as τὸ ὑγρὸν ἢ ἀτμίζοντος? (See the next note.)

431 Coutant actually replaced the second ἢ in this line with a καί. But as their translation makes clear (“the sun ... scatters the moisture, or vaporizes it and contributes to their creation”) this does not solve every problem. (Does the sun disperse *moisture* as one means of producing wind? If so, is this something separate from vaporizing moisture?)



to east. The remainder of *Pr.* 26.52 has less in common with the passage now under consideration than does *Pr.* 26.35a (which I quote in full here).<sup>432</sup>

Why does Zephyrus blow in the afternoon? Or do all the winds come when the sun disperses the moisture? For when the power of the heat is near, it consumes (the moisture) that previously collected. Now Zephyrus blows from the west. So it is reasonable that it comes in the late afternoon; for then the sun reaches that location.<sup>433</sup>

A minor textual issue: Turnebus is right that a δέ is necessary at the opening of this passage. I think it more likely, however, that Theophrastus would have placed it before the δειλῆς and not after. (Gigon, it turns out, had the same thought.)

ὅταν οὖν εἰς τὸν τόπον ἀφίκεται, καὶ ἡ πνοή. καὶ τῆς νυκτὸς παύεται διὰ τὸ ἐλλεῖπειν τὴν τοῦ ἡλίου κίνησιν.

This passage continues the explanation of why Zephyrus blows in the afternoon: Previously Theophrastus said the winds come with the sun vaporizing the moisture etc., here he concludes that when it reaches “the location” (i.e. the west) the blowing begins. And by the same logic, Zephyrus stops blowing when the sun stops producing vapor, i.e. when or around the time it sets.

Re. τὴν τοῦ ἡλίου κίνησιν: I think κίνησιν here refers not to the motion of the sun, but to its motive-power, i.e. its ability to set things in motion.

Though the penultimate lines of § 41 and *Pr.* 26.52 are completely different, the last lines of each are identical. See *Pr.* 26.52.946a31–32.

Most scholars since Bonaventura (1593, 181) have thought that καὶ ἡ πνοή is missing a verb. Bonaventura suggested adding γίνεταί (as did Gigon), though most editors have accepted Heinsius’ ἄρχεται. Although such an addition makes the text smoother, it is in fact unnecessary: καὶ ἡ πνοή with an implied ἐστὶ may have been Theophrastus’ terse way of saying “there is blowing as well,” or

432 I follow Theodore Gaza in dividing the manuscripts’ chapter 35 in two. The third *problema* I mentioned (*Pr.* 26.33) begins “Why does the Zephyr blow towards the afternoon, but not in the early morning?” (Διὰ τί ὁ ζέφυρος πρὸς τὴν δειλὴν πνεῖ, πρωτὶ δὲ οὐ;) It seems to take an entirely different approach to this question than *Vent.* 41, *Pr.* 26.35a, and 26.52.

433 Διὰ τί ὁ ζέφυρος τῆς δειλῆς πνεῖ; ἢ ἅπαντα τὰ πνεύματα τοῦ ἡλίου διαχέοντος τὸ ὑγρὸν γίνεταί; πρότερον γὰρ συνεστηκός, ὅταν ἡ τοῦ θερμοῦ δύναμις πλησιάζῃ, ἐξάπτει. ὁ δὲ ζέφυρος ἀφ’ ἐσπέρας πνεῖ. εἰκότως οὖν τῆς δειλῆς γίνεταί· τότε γὰρ ὁ ἥλιος εἰς τὸν τόπον αὐτοῦ ἀφικνεῖται.

perhaps we should take *καὶ ἡ πνοή* to be governed by *ἀφίκηται* as well, which is how I translate this: “So when the sun reaches this location, *so too does the blowing*.”

### *On Winds 42*

This chapter continues the discussion of Zephyrus, focusing on two of its attributes: that it brings the greatest clouds (to which one sentence is devoted), and that it is stormy and “ill-blowing” (which gets much more attention).

ἄγει δὲ καὶ νεφέλας μεγίστας, ὅτ' ἐκ πελάγους πνεῖ καὶ κατὰ (θ)άλατταν, ὥστε ἐκ [προ]πολλοῦ συνάγειν.

An accurate reading of this passage depends on a proper understanding of the phrase *ἐκ πελάγους πνεῖ καὶ κατὰ θάλατταν*: I think it makes the most sense to take Theophrastus to be referring to two bodies of water: the Atlantic Ocean, *out of* which Zephyrus blows (see § 41, τὸ Ἀτλαντικὸν πέλαγος; but cf. § 40, πνεῖν ... ἀπὸ θαλάττης), and the Mediterranean, *over* which it blows before it reaches the Greek mainland.<sup>434</sup>

The explanation of Zephyrus bringing with it the greatest clouds is now quite straightforward: Zephyrus “blows out from the ocean”—that is, its source is vapor or exhalations rising from the Atlantic—and further, it travels over first some portion of the Atlantic and then over the Mediterranean before it reaches land. So it not only begins with a great deal of moisture, as it travels it pushes together a great deal of additional moist and increasingly dense air, which is in effect what clouds are. Recall Thphr. *Metars.* 7.2–5:

The clouds come into existence for two causes: because of the accumulation and thickness of air and its transformation into the nature of water or because of much vapor which ascends and with which the ascending vapors of the sea as well as the remaining fluids become mixed.

DAIBER 1992, 266

Part of the present passage is corrupt in the manuscripts: ms. A reads *ἐκ πλάγους πνεῖ καὶ κατὰ ἔλαττον* ὥστε ἐκ προπολλοῦ κτλ. First, the obvious error in A

434 The initial entry in LSJ s.v. *πέλαγος* is “the sea, esp. high sea, open sea,” and the initial entry in LSJ s.v. *θάλασσα* is “sea ... freq. of the Mediterranean sea.”

(πλάγους) is correct in B (πελάγους); cf. *Pr.* 26.24 (quoted below). Second, κατὰ ἔλαττον would mean that Zephyrus blows out of the ocean and over a smaller (body of water), which does not make sense: the Mediterranean may be smaller than the Atlantic, but it would be odd for the Mediterranean to be characterized this way. Third, προπολλοῦ is not really a word (in the Classical or Hellenistic periods).<sup>435</sup> So Turnebus was right to correct this passage, emending ἔλαττον to θάλατταν and προπολλοῦ to πολλοῦ.<sup>436</sup> Perhaps he relied on *Pr.* 26.24 (which is brief enough to quote in full): Διὰ τί μεγίστας νεφέλας τῶν ἀνέμων ὁ ζέφυρος ἄγει; ἢ διότι ἐκ πελάγους πνεῖ καὶ κατὰ τὴν θάλατταν; ἐκ πολλοῦ οὖν καὶ συνάγει. (“Why, of the winds, does Zephyrus bring the greatest clouds? Is it because it blows out from the ocean and over the sea? Therefore, it also brings them together from out of a large [sc. area].”)

χειμέριος δὲ καὶ δυσαής, διόπερ τὰ πρότερα εἰρημένα. μετὰ δὲ τὸν χειμῶνα πνεῖ[ν] ψυχροῦ ἔτι τοῦ ἀέρος ῥέοντος.

That Zephyrus is stormy and ill-blowing justifies something that was said earlier (i.e. in § 40): that it is cold in part because it blows “after winter in spring, just when the sun is gaining mastery.” This is supported by the second half of the present passage: “After the winter it blows when the air is still flowing cold.” An alternative reading, arguably smoother, is to replace ms. A’s διόπερ with διὰ τε (Schneider) or διὰ (Wimmer).<sup>437</sup> it is stormy and ill-blowing *for* reasons stated earlier.

Re. χειμέριος δὲ καὶ δυσαής: as mentioned above (on § 38), δυσαής, as an adjective describing Zephyrus, is Homeric. I think it likely that Theophrastus included it here to clarify what he means by χειμέριος. χειμέριος (related to χειμῶνα, ‘winter’) can mean ‘wintery’ and ‘stormy’. The addition of δυσαής makes it clearer that he is referring to the latter meaning: not simply cold, but stormy (which I take to mean cold, strong, and bringing storm clouds). Perhaps this was necessary, as the next line begins μετὰ τὸν χειμῶνα. Nevertheless this makes the straightforward explanation less satisfactory: coming right after winter explains why Zephyrus is cold, but why would it make it *stormy*?

435 There are three late occurrences, the earliest in Theodosius (4th/5th c. AD), though there is no entry in LSJ or BDAG.

436 Perhaps προ is a corruption of τρόπου or ὑγροῦ.

437 Coutant (1975, 41) erroneously reports in his *apparatus* that Wimmer brackets the τὰ following διὰ.

Re. ἀέρος ῥέοντος: Because of the binding that has rendered some of ms. A illegible (see pp. 2–3), all that can be read is ἀέ\*\*\*\*\*τος—i.e. roughly seven letters and/or spaces are illegible between ἀέ and τος. (Further, the σ is superlinear, as is often the case at the end of a line, and the τ is not entirely certain. Read out of context, the tau could just as well be π or τι). Ms. D has ἀέρος πνέοντος (“air blowing”) corrected (superlinear, in the same hand) to ἀέρος ῥέοντος (“air flowing”). Although Turnebus’ ἀέρος ὄντος (“air being,” i.e. the *air* is still cold) makes the most sense to me, I have decided to print the correction in ms. D, because (1) it is the most likely reading in ms. A, and (2) it is not impossible conceptually. In any case, there is little difference, in this context, between the air blowing cold, flowing cold, or being cold.

ἔπειθ’ ὁ μετοπωρινὸς οὐ τοιοῦτος, εἰ μὴ τῷ μεγέθει λαμβάνηται τὸ χειμέριον. ἐν γὰρ τοῖς συνεχέσι τόποις μέγας πνεῖ, καθάπερ καὶ οἱ ἄλλοι. καὶ ληπτέον ἴσως οὕτω τὸ χειμέριον, ὥς οὐ πᾶσι.

Theophrastus immediately qualifies the claim that Zephyrus is stormy (a qualification implied in the explanation he gave, namely, that it blows right after winter). Recall (§§ 38 & 40) that Zephyrus blows both in spring (right after winter) and in the autumn (far enough into that season that the sun no longer has mastery). The autumnal Zephyrus is not stormy, unless it counts as such “due to its power” (which I assume means that it is not cold, and does not bring storms, though it is strong).

As for the second sentence, I must confess to not knowing what Theophrastus has in mind. In § 38, he says that Zephyrus is stormy “in some places” (ἐν ἰσχυροῦ). Here he says “it blows strong in connected locations” (ἐν τοῖς συνεχέσι τόποις); but what does that mean? Is it strong in the locations that are (geographically) connected with the *source* of Zephyrus? The source, however, is far out to sea and quite removed from any Greek locations. Given the lack of clarity here, I find it surprising that Bonaventura, Steinmetz, and Coutant & Eichenlaub pass over this line without comment.<sup>438</sup>

The last sentence indicates that Theophrastus has provisionally accepted this sense of ‘stormy’ for the autumnal Zephyrus: i.e., it is strong, but not cold and storm-producing, at least not in every location.<sup>439</sup> So, sometimes stormy

438 But note Furlianus (1605, 97): *loca autem continua intelligit illa, quae origini venti proxima sunt, aut loca plana, aequalia, et continua, in quibus, quod late expaciatur vehemens est, quando non offendit in loca edita, quae auersa loca tueantur.*

439 Wood takes it in the latter sense: “i.e. as due to local causes, and not being universally exhibited” (1894, 42 n. 54).

simply means ‘strong’, and thus not in every case (ὥς οὐ πᾶσι) ill-blowing. But this too will be qualified, or another explanation will be offered, in the next passage.

The manuscript reading seems to require emendation in two places. I follow Turnebus in printing οὕτω for ὁ ὥς (but not—*contra* most editors—in printing ἐπεὶ in place of ms. A’s ἔπειθ’, a move I find counterproductive). Further, ms. A’s λαμβάνοντες does not work. Turnebus conjectured λαμβάνοι τις, and Schneider printed λαμβάνομεν; but I have accepted a suggestion of Christian Wildberg (λαμβάνονται), which is more plausible paleographically and also avoids the abrupt change in subject of the other suggestions.

One final note on § 42. Schneider transposed the following passage from its place in § 43 (after ἐνταῦθα καὶ ἡδύς) to the end of § 42: εἰ μὴ ἄρα καὶ παραλάττον ἐστὶν· ἐμποιοῦνται τὴν προσηγορίαν τὸν κίον ζέφυρον καλοῦντες· χειμέριος γὰρ οὗτος· ἀλλὰ ταῦτα μὲν ἐπισκεπτέον. He was followed by Wimmer and Coutant. Although I cannot make much sense of this passage in its original position, I also think little is gained by moving it. So it stays where it is in this edition, and I discuss it in the relevant context below. (Gigon too favored restoring the line to its original position.)

### *On Winds 43*

Here Theophrastus returns to the seemingly contradictory nature of Zephyrus, alluded to in § 38: that it is both pleasant and stormy, productive and destructive. As a further indication that this was an issue of interest among Peripatetics, note the opening question of *Pr.* 26.31: “Why does Zephyrus seem to be gentle and the most pleasant of the winds, and for instance even Homer says that in the Elysian Field ‘always the breezes of Zephyrus are blowing’?”<sup>440</sup> The author’s solutions, however, are quite different from Theophrastus’ explanation.

ἡ δ’ ὁμαλότης καὶ λειότης, ὅταν ᾗ, ποιεῖ τινὰ χάριν κατὰ τὴν κίνησιν καὶ φοράν, ὥσθ’ ὅπου τοιοῦτος ἐνταῦθα καὶ ἡδύς.

I regard ὁμαλότης καὶ λειότης, and at the end ἡδύς, as a summary of sorts of the pleasant characteristics of Zephyrus, which it sometimes and/or in some

440 Διὰ τί ὁ ζέφυρος εὐδαιμόνιος καὶ ἡδιστος δοκεῖ εἶναι τῶν ἀνέμων, καὶ οἷον καὶ Ὅμηρος ἐν τῷ Ἠλυσίῳ πεδίῳ, «ἀλλ’ αἰεὶ ζεφύροιο διαπνεῖουσιν ἀήται»; The Homeric text (*Od.* 4.567) according to the manuscript tradition is «ἀλλ’ αἰεὶ ζεφύροιο λιγὺ πνεῖοντος ἀήτας».

places has: that it is smoothest (λειότατος, § 38), blows moderately and softly (μετρίως καὶ μαλακῶς, § 38), is sweet (ἡδεῖαν, § 38) and regular (ὁμαλός, § 41). This side of Zephyrus will be contrasted with its stormier side (which has just been discussed).

Re. κατὰ τὴν κίνησιν καὶ φοράν: I translate this “in its motion and direction” (cf. Coutant), but I think Wood’s rendering, though looser, likely captures what Theophrastus has in mind: “as it moves and passes by.”

εἰ μὴ ἄρα καὶ παραλλαττόντως ἐμποιοῦνται τὴν προσηγορίαν τὸν Κῖον ζέφυρον καλοῦντες, χειμέριος γὰρ οὗτος. ἀλλὰ ταῦτα μὲν ἐπισκεπτέον.

On Schneider’s transposition of this passage to the end of § 42, see above p. 283.

If we interpret this passage in context, it is meant to be an exception to the line that precedes it: Where Zephyrus is smooth and regular, it is a pleasant wind—unless one considers τὸν κῖον (ms. A) to be a Zephyrus, which would be an exception. Whatever wind Theophrastus has in mind, it must be smooth and regular, but also stormy.

Any attempt to understand this passage begins with an attempt to make sense of ms. A’s παραλάττον ἐστὶν and (especially) τὸν κῖον ζέφυρον. First, παραλάττον is not a word.<sup>441</sup> Of the suggested emendations, Schneider’s παραλλάττοντες τινες (1818, 2: 593) is plausible. But I prefer Christian Wildberg’s suggestion, παραλλαττόντως, an abbreviated ἐστὶν perhaps being a mistake for -τως: ‘they introduce a name *differently*’ (i.e. ‘they introduce a different name’).

Second, accepting ms. A’s κῖον—which no modern scholar has done—would mean taking it to be a (minor) mistake for Κῖον, which is an alternative spelling of Κεῖον (‘Cean’), pertaining to the island of Ceos.<sup>442</sup> The line would thus be rendered “they introduce a different name, calling the Cean wind ‘Zephyrus’,<sup>443</sup> for this is stormy.” That makes sense grammatically, and seems to make sense conceptually. The problem, however, is that there is, so far as I know, no wind blowing from the island of Ceos called ‘Cean’, so this is purely speculative and thus does not have much to recommend it.<sup>444</sup> Modern editors have all followed

441 Both Bonaventura (1593, 183) and Furlanus read παραλάττων, but that is not what ms. A has. In any case, it too is not a genuine word.

442 Ceos (modern day Kea or Tzia) is about 50 kilometers directly east of Cape Sounion, the southernmost tip of Attica. As Ceos is to the east of Attica, it is implausible that anyone there would mistake a wind blowing off of Ceos with Zephyrus (*the west wind*).

443 Or “calling it the Cean-Zephyrus,” but this has the same problem as the suggestions from Bonaventura (which I discuss shortly).

444 Further speculation: Back in § 38, Theophrastus said that in some places Zephyrus is

Turnebus in emending κίον to (Θρασ)κίαν: “calling the *Thrascias* ‘Zephyrus.’” That seems to work well enough, though the *Thrascias* is more a north than it is a west wind (i.e. it is roughly north-by-northwest). Now the *Thrascias* is not otherwise mentioned in *On Winds*; but according to [Thphr.] *Sign.* 36 it is one of the wettest (ὕγροι μάλιστα) winds, which claim offers some support for this reading. Bonaventura mentions three possibilities: (1) τὸν κυνοζέφυρον, the Dog-Zephyrus;<sup>445</sup> (2) τὸν χιονοζέφυρον, the Snow-Zephyrus;<sup>446</sup> (3) τὸν χειμωνοζέφυρον, the Stormy-Zephyrus. But each of these suggestions implies that Theophrastus was saying people introduced a different name and called it Dog-Zephyrus (or Stormy-Zephyrus or Snow-Zephyrus), which makes no sense in context: how would some people calling Zephyrus something else (Dog-Zephyrus or Stormy-Zephyrus or Snow-Zephyrus) qualify or modify the passage that precedes this one? As (Θρασ)κίαν does more violence to the text, however, I have printed Κίον—without much confidence.<sup>447</sup>

On εἰ μὴ ἄρα as ‘unless perhaps’, see LSJ s.v. ἄρα B.5.

Re. ἀλλὰ ταῦτα μὲν ἐπισκεπτέον: I think this is precisely the kind of qualifying remark Theophrastus would make somewhere in the vicinity of the discussion of the seemingly contradictory characteristics of Zephyrus. Now ἐπισκεπτέον with μὲν, followed by a new section or subject indicated by δέ, is a standard way in which Theophrastus ends one discussion (which must be investigated further) and moves on to another. See e.g.: *Od.* 16–17: ταῦτα μὲν οὖν ἐπισκεπτέον. χρῶνται δὲ πρὸς πάντα τοῖς ἀρώμασι, κτλ. *On Fish* 6–7: περὶ μὲν οὖν τούτων ἐπισκεπτέον. οἱ δ’ ὀρυκτοὶ τῶν ἰχθύων κτλ.<sup>448</sup> From this perspective, μὲν ἐπισκεπτέον is arguably a better fit after the suggested transposition. But one could argue

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stormy (πνεῖ δ’ ἐνιαχοῦ μὲν χειμέριος). No such locations are named. Perhaps a marginal gloss indicated that the Ceans called the Zephyrus stormy, and this comment became mangled and introduced into the text in § 43.

445 Cf. *Pr.* 26.22, which is brief enough to quote in full: “Why do dogs find the scent least when Zephyrus is blowing? Is it that Zephyrus is most confusing because, of all the winds, it is the most continuous and blows most on the land?” (Διὰ τί οἱ κύνες τὰ ἔχρη ἥκιστα εὐρίσκουσι ζεφύρου πνέοντος; ἢ διότι μάλιστα συγχεῖ διὰ τὸ συνεχέστατος εἶναι τῶν ἀνέμων καὶ μάλιστα ὑπὸ τὴν γῆν πνεῖν;) This chapter contradicts the claim in § 40 that Zephyrus is not a continuous wind.

446 Zephyrus does not blow off of melting snow (§ 40), but this need not contradict there being a Zephyrus that brings snow. So if such a wind existed, it would be a smooth, regular wind that brings snow.

447 [Aristotle], *On Positions*, likely indicated that Zephyrus had different names in different locations, but there unfortunately seems to be a lacuna in the text where these alternative names were given (see 973b10–14).

448 In the botanical works, see *HP* 2.6.10–11, 3.3.8–3.4.1, 4.12.2, *CP* 3.14.6–7, 4.6.9–4.7.1, 4.13.1–2.

that Theophrastus' next point—that Zephyrus ruins some crops, but nourishes others—is something of a new (however related) discussion. Note however that ms. S omits the μέν (if not an oversight, because the scribe thought something was amiss), and Wimmer brackets it.

ὅτι δὲ τοὺς καρποὺς οὓς μέν φθείρει οὓς δὲ τρέφει, καθόλου μέν ἐκεῖνο ἀληθὲς εἰπεῖν, ὃ καὶ κατὰ τῶν ἄλλων κοινόν· ὅτι τρέφει μέν ὅπου [μέν] ψυχρὸς πνεῖ τοῦ θέρους, ἀπόλλυσι δὲ ὅπου θερμός. καὶ πάλιν τοῦ χειμῶνος καὶ τοῦ ἡρος ὁμοίως· ὅπου μέν ψυχρὸς ἀπόλλυσι, ὅπου δὲ θερμός τρέφει καὶ σώζει, ἐναντίως ταῖς ὥραις τὴν πνοὴν ἔχων.

Theophrastus here explains part of the reason why Zephyrus has this dual reputation, with a characteristic that goes beyond being both stormy and pleasant: it ruins some crops, but nourishes others.<sup>449</sup> This peculiar, seemingly contradictory, characteristic is accounted for by what explains the effect of wind on crops generally: winds that blow (relatively) cold in summer tend to nourish them, winds that blow (relatively) hot in summer tend to destroy them.<sup>450</sup> Although the capacity for winds to destroy crops would come up mostly in the summer, the same principle applies (or the same facts are in play) in the winter: Where Zephyrus blows (relatively) cold in winter it destroys, where it blows (relatively) hot it nourishes.

Theophrastus refers to the broader fact that explains both: when Zephyrus (or any wind, for that matter) blows with a temperature opposite to that of the season (relatively hot in winter, relatively cold in summer), it nourishes; when it blows with the same temperature (hot in summer, cold in winter), it destroys.

On Theophrastus on the effect of wind on plants, see pp. 95–96. He discusses this further, specifically in connection with Zephyrus, in §§ 44–45. I assume the winter crops Theophrastus is referring to are fruit trees. Elsewhere, discussing the death of trees from cold wind, he mentions cold winds blowing in Greece, from the west and the east, during the forty days around the winter solstice (*CP* 5.12.4).

I find the reference to spring in the second part of this passage somewhat surprising, as it is not true to say that blowing cold is opposite to the temperature associated with spring. But perhaps Theophrastus has in mind the part of spring immediately after winter (cf. § 40: καὶ ἔτι μετὰ χειμῶνα τοῦ ἡρος). In any

449 Cf. the last line in § 38: τοῖς μέν ἐκτρέφει, τοῖς δ' ἀποκλείει καὶ διαφέρει τελείως.

450 *Hp. Epid.* 5.1.98 & 7.1.105 suggest it is harmful to health when Zephyrus blows during extremely hot weather.



case, ms. D's correction of A's ἥρος to ἦρος is surely right, though A's reading may be an indication that something is amiss. Note that in the next passage, Theophrastus mentions winter and summer only.

Re. ἐναντίως ταῖς ὥραις τὴν πνοὴν ἔχων: ms. A has ἐναντίως ταῖς ὥραις τὴν πνοὴν ἔχειν, which Turnebus emended to ἐναντίαν ταῖς ὥραις τὴν πνοὴν ἔχων. His revision has been accepted by editors since. I think Turnebus' ἔχων is necessary, but not however his ἐναντίαν.

τοῦτο δ' ἐστὶν ὅταν ἐκ θαλάττης ἦ· θερμὴ γὰρ αὕτη χειμῶνος, θέρους δὲ ψυχρά.

Theophrastus now explains more fundamentally why Zephyrus is capable of nourishing crops (where it does so), which is to explain why it is capable of blowing with a temperature opposite to that of the season: It can do so because Zephyrus blows from out of the sea, and the sea has this same quality: it is hot in winter and cold in summer. Or more accurately, in winter the sea is warmer than the ambient temperature of the air, in summer it is cooler.<sup>451</sup>

What Theophrastus does not explain here is why, though Zephyrus always blows from out of the sea, and the sea always has the aforementioned relative temperature, it sometimes (and/or in some places) blows cold in winter and hot in summer, thus destroying crops. He will discuss precisely this in his account in §§ 44–45 of how Zephyrus differs depending on location.

One noteworthy textual issue: ms. A has θαλάττης· ἢ θερμὴ κτλ., which is hard to make sense of. So like most editors, I accept the intelligent correction in ms. B: changing ἢ to ἦ (which is governed by ὅταν), and moving the punctuation from before to after it.

As it is feminine, αὕτη must refer back to θαλάττης. I embellish my translation to avoid ambiguity: “for it (sc. the sea) is hot” etc. (Cf. Coutant's translation: “This comes about when the wind is from the sea; it is warm” etc.)

διὰ τοῦτο δὲ καὶ ὁ νότος ἐνιαχοῦ τοιοῦτος, ὥσπερ καὶ ἐν Ἀργεῖ, καὶ ὁ βορέας δὲ παρ' ἄλλοις.

I take ‘this reason’ (τοῦτο) to refer to wind blowing with a temperature the opposite of that of the ambient air (in winter or summer), because it comes off of or over a body of water. For this reason, Notos has this characteristic in Argos

451 Wood (1894, 43 n. 55) comments: “This of course is not true absolutely, but relatively only.” Cf. Steinmetz (1964, 48), who translates this line: *Das Meer ist nämlich im Winter (relativ) warm, in Sommer kühl.*

and other places: it is warmer or cooler than the temperature of the region into which it blows (and perhaps is thus capable of nourishing and destroying crops as a result); and the same is true for Boreas in other locations.

This sentence is (I think) a reminder that part of the reason for discussing Zephyrus in detail is to discover general truths about winds that are applicable more broadly. It also acts as a transition to the next phase of the discussion (§§ 44–45): how Zephyrus differs depending on location.

### *On Winds 44*

From the beginning and throughout this work, Theophrastus has stressed the importance of location in determining the characteristics of winds: the nature of the location itself (e.g. hot or cold, mountainous or level) and the distance of that location from the origin or source of the wind (see especially §§ 2–7). §§ 44–45 discuss how Zephyrus differs depending on location. (One could add § 46 here, as §§ 44–46 seem to form a unit. But § 46 does not discuss Zephyrus: like the last line of § 43, it applies what was just said about Zephyrus to other winds.)

τὸ μὲν οὖν ἀπλοῦν καὶ κοινὸν ὥσπερ ἐλέχθη τοῦτο. τὰ δὲ καθ' ἑκάστους τόπους ἐκ τῆς θέσεως δεῖ καὶ τῶν ἄλλων τῶν συμβαινόντων ἀνασκοπεῖν καὶ θεωρεῖν· εὐρήσεις γὰρ σχεδὸν ἐν ταύταις ταῖς αἰτίαις τὴν διαφορὰν.

The “straightforward and common” characteristics of Zephyrus have been discussed in §§ 38 & 40–43. They are common in the sense of being characteristic of Zephyrus wherever it blows—except of course where differences have been specified, though even these (e.g. that it nourishes crops in some locations or at some times, and destroys them in other locations or at other times) are common general characteristics of Zephyrus. And they are straightforward (or simple or without qualification [ἀπλοῦν]) in that the description of them did not require additional accounts of the various locations into which it blows, and of the various features of those locations as causes of characteristics of Zephyrus.

The discussion that follows will not be straightforward and common: it will be complex and varied depending on the particular locations into which Zephyrus blows. Assuming certain textual issues have been dealt with properly (more on these below), Theophrastus discusses the characteristics of Zephyrus with respect to the following particular locations (τὰ καθ' ἑκάστους τόπους): Locris (in Italy), Gortyn (in Crete), the Maliac Gulf (in the Aegean, on the eastern side of central Greece), and the area of Thessaly near Mt. Pierus.

Re. ἐκ τῆς θέσεως ... καὶ τῶν ἄλλων τῶν συμβαινόντων (“from its position and the other circumstances”): I think it is clear from what follows that τῆς θέσεως refers (or refers especially) to the position<sup>452</sup> of a particular location *in relation to the sea*—which, as we have seen, is the source of Zephyrus and a determining factor in its particular character. Now although τῶν ἄλλων τῶν συμβαινόντων must refer to anything else about a particular location that has an influence on the attributes of Zephyrus there, again (based on what follows) this would seem to refer most of all to whether or not the location is mountainous. But I suspect it would include the local climate, whether there are other bodies of water (rivers and lakes) or forests, etc.

If the second person future indicative εὐρήσεις (“you will discover”)—the only occurrence of such a second person in *On Winds*—is not the result of textual corruption, but goes back to Theophrastus’ original, then it is perhaps an indication that this treatise grew out of (or simply was) his lecture notes. That would explain a lot about the state of this work.

Two minor corrections of ms. A seem necessary: (1) the marginal correction in ms. B—τόπους (‘locations’) for τύπους (‘impressions’)—is necessary for sense; and (2) Turnebus’ correction—ἀνασκοπεῖν for ἀνακοπτεῖν<sup>453</sup>—is necessary as well: “must be examined” (δεῖ ... ἀνασκοπεῖν) rather than “must be hindered.”

οἶον τῆς Ἰταλίας· ἡ μὲν (Λο)κρίς καὶ ἡ ταύτη συνεχῆς εὐθέναι τῷ ζεφύρῳ, διὰ τὸ ἐκ θαλάττης προσπίπτειν· ἄλλη δὲ τις οὐχ ὁμοίως, ἔναι δὲ καὶ βλάπτονται.

The text of this and the following passage (i.e., the remainder of § 44) is in terrible shape.

This passage is the first of two examples in § 44 of Zephyrus having particular characteristics based on the particular location it encounters. The example is not simply the city of Locris (more on that shortly), but (I assume) the region of southern Italy around Locris. Some cities or areas in this region thrive owing to Zephyrus, others do not, and among these others, some are even harmed. And this must all be based on a city’s or region’s position, as well its other relevant attributes—though unfortunately none of these are specified or discussed (but see toward the end of the next paragraph).

452 Wood translates ἐκ τῆς θέσεως “from the point of view of the situation,” Coutant “local conditions”; but “from the (or ‘its’) position” is what is meant. Cf. Steinmetz (1964, 48): *ihrer Lage*.

453 Cf. ἀνασκέπτειν, Furlanus (1605, 98).

In ms. A, οἶον τῆς Ἰταλίας ends a line and is crystal clear, as is the punctuation that follows it (·). This punctuation should not be ignored, as it has been by editors.<sup>454</sup> The beginning of the next line is quite clear; but it is nevertheless difficult to make out as the scribe has used unusual (for this work) abbreviations. The line begins (as well as I can convey it here): ἡ μ<sup>ε</sup>ν κρ<sup>ι</sup> (except that the ‘tail’ of the rho in κρ<sup>ι</sup> extends down diagonally and then up—somewhat like √—with <sup>ι</sup> above it). Now μ<sup>ε</sup>ν is clearly μὲν, as μ<sup>ε</sup> is a standard abbreviation for με (see van Groningen 1967, 44)—though why the scribe would use it here and not elsewhere is a bit of a puzzle. The scribe of ms. D takes κρ<sup>ι</sup> to be κρις. This is followed by other manuscripts, though ms. R and those deriving from it have κρηις. The Aldine prints an abbreviation similar to (but not exactly like) that in ms. A. Gryneus prints κρίς, but whether that is his understanding of the abbreviation in the Aldine, or an emendation or error, I cannot say. In any case, neither κρις nor κρίς nor κρηις makes any sense, so the text must be emended. There have been two suggestions: Turnebus crossed out κρίς in his copy of Vascosanus and wrote λοκρις in the margin (Locris is an Italian city on the tip of the boot), which has been followed by every editor since—with one exception: Furlanus suggested κρότων (Croton is an Italian city farther up the ‘sole’ of the boot, northeast of Locris). I too accept Λοκρίς: not only is it arguably closer to the text, this city was known as Locri Epizephyrii (‘Locris toward Zephyrus,’ i.e. Western Locris) because it was founded by the Locrians who lived on the Greek mainland.<sup>455</sup> Locris lies on the eastern side of the thin ‘toe’ of Italy, so it is exposed to Zephyrus, though there is some land between it and the sea. But Theophrastus does not explain why Locris thrives owing to Zephyrus, while other cities or areas in the region do not.

There are three feminine words in this passage whose implied referent should be made explicit. First consider the second feminine article in this phrase: ἡ μὲν (Λο)κρις καὶ ἡ ταύτη συνεχής (“Locris and the [?] adjoining this”). Perhaps it is feminine because ἡ Λοκρίς is, and so it has the sense of ‘what’ (“Locris and what is adjoining this”). I think the other possibilities are to take there to be an implied πόλις or χώρα: “and the (city)” or “and the (area).” The latter is how I translate it; but note that there was another, smaller city (Coulonia) about 25 kilometers up the coast from Locris. Locris and Coulonia (and the farm lands around them) were likely similarly affected by Zephyrus.

454 This is why I translate the opening of this line “For instance in Italy: Locris” etc. Cf. Coutant: “for example, in Locris in Italy” etc.

455 See Daverio Rocchi (2006).

Now the same issue arises in the case of ἄλλη τις and ἔναι in the final clause of this passage: Here I think there are three candidates: πόλις, χώρα, or θέσις (note τῆς θέσεως from the previous passage). So, “it is not the same for *some other* (city/area/position), and *some* (cities/areas/positions) are even harmed.” Again, I have a preference for χώρα, though I am not entirely confident that that is what Theophrastus intended.

Three emendations of ms. A: (1) ἐνθένει is not a word (nor ἐνθείνει, which the Aldine prints); I accept Coutant’s εὐθενεῖ,<sup>456</sup> ‘thrive’ (cf. Turnebus’ εὐθηνεῖ). εὐθενεῖ and εὐθηνεῖ are two forms of the same word: Aristotle prefers the latter, though Theophrastus (in his botanical writings) prefers the former (which is closer to the reading of ms. A). εὐσθενεῖ is also possible. (2) The correction by a second hand in ms. B—ἐκ for ἐν—ought to be accepted; but Wimmer’s addition (ἐκ <τῆς>) is unnecessary. In fact, I think “from a sea” works better than “from <the> sea.” (3) The last clause requires a passive indicative (βλάπτονται, Turnebus) rather than the active participle (βλάπτοντες).

καὶ πάλιν τῆς Κρήτης· ἡ μὲν Γόρτυνα τρέφεται, κεῖται γὰρ ἀναπεπταμένη, καὶ προσβάλλει αὐτῇ ἐκ τοῦ πελάγους· ἑτέρα δέ τις (ἄ)πόλλυται<sup>457</sup> πρὸς ἣν ἐκ τῆς γῆς καὶ ὁρῶν τινῶν προσπίπτει.

As in the case of Locris, so here the example is not simply Gortyn, but all of Crete (or perhaps southern Crete): at least one city or area in this region (i.e. Gortyn) thrives owing to Zephyrus, whereas a different city or area (ἑτέρα τις) is destroyed. We are not told what region is destroyed (but cf. § 14).

Gortyn was a city in southern Crete, to the east of the bay Ormos Mesaras (part of the Libyan Sea). It is close to the sea but with some open (unobstructed) land in between over which Zephyrus blows before reaching it. (Today the site of ancient Gortyn is about 25 kilometers east of Ormos Mesaras.) Coutant & Eichenlaub add: “The land slopes westward from Gortyna toward the Libyan Sea, a broad valley opening to the west; hence the observation seems correct” (1975, 82).

Re. τῆς Κρήτης· ἡ μὲν Γόρτυνα: Ms. A has τῆς κρι· ἡ μὲν κορτύνα. Again, note the punctuation mark (·), which editors have ignored. Now κορτύνα is too close to γορτύνα to be anything else (Aldus was the first to write or print Γορτύνα); and this is confirmed by κρι·, which the scribe of ms. V<sup>a</sup> knew to change to

456 It turns out Gigon suggested this as well.

457 Like every other modern editor, I accept Turnebus’ correction of the manuscript’s πόλλυται (which is not a word) to ἀπόλλυται.

κρήτης. Schneider's Γορτύνη (a late alternative spelling), accepted by Wimmer, is a mistake. Judging by a TLG search, Gigon was right to emend the accent: Γόρτυνα.

Re. προσβάλλει αὐτῇ: Turnebus replaced ms. A's τὴν with αὐτῇ, I assume in part because when προσβάλλω is used intransitively, what it falls upon is in the dative.<sup>458</sup> So προσβάλλει αὐτῇ here means "falls upon *it*" (i.e. ἡ Γορτύνῃ).

### *On Winds 45*

The discussion continues uninterrupted, except that in § 45 the focus is on areas that are negatively affected by Zephyrus. Examples are provided, as well as a general explanation.

φθείρει δὲ καὶ τὰ ἐν τῷ Μα(λιακῷ) κόλπῳ πάντα καὶ τὰ ἐπέτεια καὶ τὰ τῶν δένδρων, (καὶ) τὰ τῆς Θετταλίας περὶ τὸν Πιέριον. ἀμφοτέρων δὲ τῶν τόπων ἡ αὐτὴ φύσις καὶ τὰ περιέχονθ' ὅμοια· κείνται μὲν γὰρ ἄμφω πρὸς ἀνατολήν, περιέχονται δ' ὄρεσιν ὑψηλοῖς, ὁ μὲν τῇ Οἴτῃ καὶ τοῖς συνεχέσι (...)

The text is thoroughly corrupt. In the first sentence, ms. A reads as follows (correcting one obvious error):<sup>459</sup> φθείρει δὲ καὶ τὰ ἐν τῷ μὴ κόλπῳ πάντα καὶ τὰ ἐπέτεια καὶ τὰ τῶν δένδρων τὰ τῆς Θετταλίας περὶ τὸν κιέριον ("And it also ruins everything in the 'not' gulf, both the annuals and those of the trees of Thessaly (that grow) around Kierion"). It should be clear by now just how much trouble place-names were for the medieval scribes who were apparently unfamiliar with them: Here we see that the name of the gulf has been mangled beyond recognition; and further, κιέριον is likely a mistake for Πιέριον. (More on this gulf, and Pierion, shortly).

There is another problem, given that the next sentence begins ἀμφοτέρων δὲ τῶν τόπων ἡ αὐτὴ φύσις ... ("The nature is the same for both locations ..."). For in ms. A, two different locations have not been mentioned (unless one thinks of Crete, from the previous chapter, but that too is ruled out by what follows). So I think ἀμφοτέρων τῶν τόπων supports Furlanus' insertion of a καὶ before

458 See BDAG s.v. προσβάλλω: "[D] *intrans.* to strike, collide against ... τινι" and LSJ s.v. II: "intr., strike against, make an attack or assault upon" (with all examples of what is struck in the dative).

459 I accept Turnebus' ἐπέτεια for the manuscripts' ἐφέτεια (which is not a word). Coutant prints ἐφέτεια, which word does not seem to exist (though see LSJ s.v. ἐφέτειος, ον, = ἐπέτειος). He translates it 'annuals'.

τὰ τῆς Θεσσαλίας etc.<sup>460</sup> The two locations (in the region of Thessaly) would thus be the area around whatever gulf Theophrastus is talking about, as well as Pieria.

Re. the impossible ἐν τῷ μὴ κόλπῳ: I was tempted to simply bracket the μὴ and read ‘in the gulf’. But without mentioning which gulf, it sounds as if Theophrastus is either still talking about Crete (which the following line makes clear is not the case), or—given the mention soon thereafter of Pieria—he is referring to the Thermaic (or Thermian) Gulf, which is *the* gulf to the east of Pieria. But this does not seem possible, for reasons already given, namely, that Theophrastus is talking about two regions, whereas Pieria and the Thermaic Gulf are the same region. So despite the paleographical implausibility of such a word being corrupted to μὴ, I have accepted (with other editors) Turnebus’ conjecture Μαλιακῷ: “in the Maliac (or Malian) Gulf.”<sup>461</sup> This gulf is in a different location in Thessaly, south of Pieria. And this interpretation is further supported by the example of Mt. Oeta that follows, which is near the Maliac Gulf but not in the region of Pieria.

Re. ms. A’s κιέριον: There is in fact a city called Kierion (Cierium) in Thessaly,<sup>462</sup> but it does not fit Theophrastus’ description, for it does not lie to the east, but is quite central. And it is not surrounded by high mountains (accept in the sense that all of Thessaly is, so there would seem to be no reason to identify this particular city). Furthermore, the region of Thessaly in which Kierion resided is quite fertile. For these reasons (presumably), editors since Grynæus have printed πιέριον in place of κιέριον: The Pierion area of Thessaly (modern day Pieria) is north of the Maliac Gulf, up the coast, and is pretty much surrounded by mountains (including Mt. Pierus and Mt. Olympus).

Theophrastus clearly intended to give examples of the mountains surrounding each region. He begins ὁ μὲν τῇ Οἴτῃ καὶ τοῖς συνεχέσι: these mountains surround the area near the Maliac Gulf. But there is no second example (with a δέ answering the μὲν), of the mountains surrounding the region of Pieria. I suspect a scribe’s eye jumped ahead to ὁ δὲ πνέων (see the next passage), thus failing to include the example. Schneider inserts ὁ δὲ τῷ Πιέριῳ into the text (which may well be right); but I think it best to mark a lacuna in the text, and indicate here that Theophrastus must have referred to the mountain range surrounding the Pierian region but that that reference is missing.

460 I think this is more effective than Turnebus’ changing τὰ καὶ.

461 Wimmer prints μαλακῷ (‘soft’), which I assume is a typographical error.

462 See Kramolisch (2006).

τὸ δὲ πνέων ζέφυρος ἀπὸ δυσμῆς ἰσημερινῆς τὴν ὑπὸ τοῦ ἡλίου θερμότητα προσπιπτουσιν τοῖς ὄρεσιν καὶ ἀνακλωμένην καὶ τὴν (*lac. 5 litt.*) εὐθὺς εἰς πεδῖον καὶ ἀπέκαυσεν.†

This passage includes the unusual notion of *heat* reflecting or deflecting off of a mountain.<sup>463</sup> Moreover, there are two glaring problems with this text (which may be related): (1) There is no verb connecting the subject (ὁ πνέων ζέφυρος)<sup>464</sup> and what seems to be its object (τὴν ὑπὸ τοῦ ἡλίου θερμότητα); (2) there is a lacuna of about five letters following καὶ τὴν. Editors have offered some suggestions (see e.g. the *app. crit. ad loc.* and Steinmetz 1964, 49 n. 2), but I think it best to print the text as found in ms. A (obelized).

Despite the shape the text is in, I think its basic meaning is clear enough. It is an explanation of the destruction of crops referred to in the previous passage: The normally warm air of Zephyrus, by blowing up and over a mountain, becomes so cold that by the time it reaches the plain on the other side, it freezes up (lit. burns off) the crops there.<sup>465</sup> I translate ἀπέκαυσεν ‘causes a frost’. Although the primary meaning of ἀποκαίω is ‘burn off’, it can also refer to intense cold causing damage (see LSJ and *BDAG* s.v.). (Cf. the French for ‘frostbitten’: *grillé par le gel*.) Theophrastus uses the verb in this way in his botanical works to describe the effect of cold winds on trees: In general, he says, cold winds are better than hot—unless they catch the trees just sprouting or in bloom, “for then the cold (winds) cause frost (or ‘freeze [the exposed parts] off’), as was said”<sup>466</sup> (*CP* 2.3.1).

Re. ἀπὸ δυσμῆς ἰσημερινῆς: Aristotle uses the same terminology in one of his rare mentions of Zephyrus: In *Mete.* 2.6, discussing the positions of the winds on the windrose, he says “Let A be the equinoctial sundown (δυσμὴ ἰσημερινή)”; and a few lines later, he says that “Zephyrus is the one that blows from A, for this is the equinoctial sundown (δυσμὴ ἰσημερινή)” (363a34 & 363b12–13).

463 The text clearly says that *the heat* is striking and being reflected or deflected (τὴν ... θερμότητα προσπιπτουσιν ... καὶ ἀνακλωμένην). I assume the surprising reference to heat (rather than hot wind or air) being reflected off or deflected up a mountain prompted Steinmetz (1964, 49) in his translation of this passage to render ἀνακλωμένην *zurückgestrahlt (!)* (italics and exclamation points are his).

464 Gigon recommends transposing these words (ζέφυρος πνέων).

465 Coutant & Eichenlaub (1975, 83) comment: “Both the Malic Gulf and the Pierian region near Thessaly are subjected to strong downslope winds when the west wind is blowing.”

466 καθόλου γὰρ ὡς εἰπεῖν τὰ ψυχρὰ τῶν θερμῶν ἐάν μὴ ἀρτιβλαστῇ ἢ καὶ ἐν ἀνθήσει λαμβάνη· τότε γὰρ ἀποκάει τὰ ψυχρὰ καθάπερ εἴρηται (see *CP* 2.1.7). On cold winds ‘burning up’ trees more generally, see *HP* 4.14.11.



ὁμοίως δὲ καὶ παρὰ τοῖς ἄλλοις οἷς ἢ τι τοιοῦτον ἢ παραπλήσιον τούτῳ συμβαῖνόν ἐστι, καὶ τοῖς ἐναντίοις ἀνάπαλιν.

This is a brief summation of sorts of §§ 44–45. Having explained why Zephyrus ruins crops in the lands around the Maliac Gulf and around the Pierian area of Thessaly, he adds that this wind would have the same or similar effects in the same kinds of places. And the converse would happen in the opposite kinds of places. That is, Zephyrus causes the crops to thrive not only in and around Locris, in Italy, and in Gortyn on the island of Crete, but in other places of the same or similar nature.

There are textual problems with one clause, which in ms. A reads: αἶς εἴ τι τοιοῦτον ἢ παραπλήσιον τοῦτο συμβαῖνόν ἐστι. Clearly αἶς should be changed to οἷς (as in the Aldine). Not as certain, but still advisable, is Turnebus' change of τοῦτο to τούτῳ. Where Turnebus brackets εἴ, however, I follow a suggestion of Christian Wildberg and print ἢ in its place (an error likely owing to dictation, as the two would have been pronounced the same).

### *On Winds 46*

§ 46 could arguably be grouped with the previous section on Zephyrus (and Caicias), expanding on the summary-like last line of § 45. This is how Wimmer and Steinmetz view it, taking §§ 37–46 as a unit. But in fact, § 46 is not about Zephyrus (or the Caicias). Further, it seems to be out of place, and something of an afterthought or later addition, because the opening of § 47 reads like a transition between §§ 37–45, and a new topic. In any case, in my introduction I label §§ 46–55 'Assorted facts about and issues concerning various winds'.<sup>467</sup>

Referring to §§ 47–55—yet worth mentioning in connection with my grouping together of §§ 46–55—Steinmetz (1964, 50) claims that these chapters appear to be a random assortment, but in fact are not: for they all involve weather 'rules' that were laid down in proverbial expressions. Two comments: (1) although I doubt that proverbs can be identified for all of the issues or problems discussed (but see §§ 46 & 49–51), I would agree that Theophrastus is concerned here with common meteorological *endoxa*; (2) this does not count as much of a connection, as they are still a loose assortment of brief discussions

467 Cf. Steinmetz (1964, 50), who refers to the *Vorlesungsthema* of §§ 47–55 as *Einzelfragen und Wetterregeln*.

of purported facts, issues, and problems (though in places there is a definite attempt to move logically from one issue to another).

Aside from seeming to be out of place and a later addition, there are other oddities or problems with § 46: the text is lacunose and unclear; it is not obvious whether it refers to one proverb or two, and it does not quote the proverb(s) with which it is concerned; and, it seems to repeat what had been said earlier and in general to lack coherence.

As we shall see, how one interprets § 46 in part is related to or depends on how one sees its relationship to *Pr.* 26.46.

ὅλως γὰρ ὁ πολλάκις λέγεται, τοῦτ' ἀληθές· ὅτι μέγα συμβάλλεται δι' ὧν ἂν πνέῃ καὶ ὅθεν εἰς τε ἄλλα καὶ εἰς θερμότητα καὶ εἰς ψυχρότητα.

In § 45, Theophrastus claims that in certain regions, Zephyrus ruins crops apparently by freezing them. § 46 begins with a general statement about location and temperature (in effect a capsule statement of what was discussed in §§ 3 & 20). He will support the general nature of this claim—that it is not true of Zephyrus alone—by discussing a relevant proverb about Notos and Boreas.<sup>468</sup> Given that Zephyrus is known for its particular characteristics, it should not surprise us that the way in which this statement is true for it (say, in freezing and ruining crops) is not the same as the way in which it is true for Boreas or Notos.

διὰ τοῦτο γὰρ καὶ ὁ νότος ψυχρὸς οὐχ ἦττον τοῦ βορέου κατὰ τὴν παροιμίαν, ὅτι (διὰ τὸν) ἄερα κατεψυγμένον ἔτι καὶ ὑγρὸν ὑπὸ τοῦ χειμῶνος τοιαύτην ἀνάγκη[ν] τὴν [ἄνα] πνοὴν προσπίπτειν, οἷος ἂν ὁ ἀήρ ᾦν. καὶ (ὁ) βορέας ὁ ἐπὶ τῶν πηλῶν τῶν νότων, ὃν φησι πάλιν ἡ παροιμία χειμῶνα ποιεῖν, διὰ τὴν αὐτὴν αἰτίαν ποιεῖ· βρεχθεὶς γὰρ ὁ ἀήρ ψυχρός.

Theophrastus provides two examples (based on well-known *endoxa*) of his general claim that it makes a big difference with respect to the attributes of a wind through what and from where it blows: in brief, (1) that Notos is cold because it is cooled by stormy or wintery weather, and (2) that Boreas is stormy when it blows “on mud” (i.e. over drenched earth).

Regarding the Notos example, recall what Theophrastus says in § 3: “the wind traveling through a narrow passage and so more intensely is colder ..., and this

468 Cf. Steinmetz (1964, 49) who considers this opening of § 46 the end of the discussion of Zephyrus, and the rest of the chapter *ein kurzer Nachtrag zu zwei sprichwörtlichen Wetterregeln*.

is why Notos is colder there (i.e. in the south) than it is with us (i.e. in Greece)—and as some people say, even more so than Boreas.” He seems to be making a different point here: “Notos is cold no less than Boreas” because its air is cooled and moistened by stormy or wintery weather. Whereas in § 3 Theophrastus refers to what “some people say,” here he refers to a proverb (κατὰ τὴν παροιμίαν) though he does not quote it. The text of the Boreas example is corrupt and hard to make sense of, and I cannot add to my brief description above. Theophrastus again refers to a proverb (πάλιν ἢ παροιμία) which he does not quote.

It is worthwhile comparing § 46 and *Pr.* 26.46, as they seem to be related and as the latter quotes two proverbs or two lines from the same proverb. Although it is unclear whether § 46 and *Pr.* 26.46 are each discussing one proverb or two, for ease of reference I will proceed as if there are in both cases two. (In the end I think this is right, but that the first proverb referred to in § 46 is lost.)

I present *Pr.* 26.46 in full here. The two lines quoted within are in hexameter in the Greek.

Why do people say: “if Notos summons a Boreas, a storm comes forthwith?” Is it because Notos is such as to gather clouds and much rain? Therefore, when Boreas blows upon (Notos) under such conditions, there being a lot of material with it, it freezes (this material) and produces a storm. This is why people say: “If Boreas lays hold of mud, a storm comes forthwith.” And mud and in general water come especially or most often due to Notos.<sup>469</sup>

Although the proverbs relate to those mentioned in § 46, the author of *Pr.* 26.46 seems to be discussing something different than Theophrastus is, or else he has a different interpretation of the same phenomena. For as far as I can tell, the author of *Pr.* 26.46 is discussing the influence of Boreas on Notos (in the first case) and of Notos on Boreas (in the second), and *not* (as in § 46) the influence of the location from which and through which Notos or Boreas flows. Now one might argue that the two discussions are closer than they at first appear, as Theophrastus is discussing the nature of Notos when it blows through a location affected by Boreas, and the nature of Boreas when it blows through a location affected by Notos. In fact, I think a good case can be made for the

469 Διὰ τί λέγεται «εἰ δ' ὁ νότος βορέαν προκαλέσσειται, αὐτίκα χειμών»; ἢ διότι ὁ νότος τοιοῦτός ἐστιν οἶος νεφέλας καὶ ὕδωρ πολὺ συναίρειν; ὅταν οὖν τοιαύτης τῆς καταστάσεως οὔσης ἐπιπνεύσῃ ὁ βορέας, πολλῆς αὐτῷ ὕλης ὑπαρχούσης πῆγνυσι καὶ χειμῶνα ποιεῖ. διὸ λέγεται «εἰ βορρᾶς πηλὸν καταλήψεται, αὐτίκα χειμών». ὁ δὲ πηλὸς καὶ ὄλως τὰ ὕδατα ὑπὸ τοῦ νότου ἢ μάλιστα ἢ πλειστάκις γίνεται.

*latter* (especially if one accepts a certain emendation of ms. A's τῶν ὄντων—more on which below), though I see no reason to think Theophrastus is here doing the former.

How do these two proverbs relate to the proverbs mentioned in §46? I begin on firmer ground with the second example from §46: It is indisputable (however mangled the text) that Theophrastus is referring to the same proverb as the second one quoted in *Pr.* 26.46: Compare “Boreas blowing on the mud from Notos winds, which again the proverb says produces stormy weather” with “If a Boreas lays hold of mud, a storm comes forthwith.” (Although it is not part of the proverb, it is clear from the context in *Pr.* 26.46 that the author maintains that this mud comes from a Notos wind.)<sup>470</sup>

It is more difficult (if not impossible) to identify the first proverb mentioned in §46: “for this reason too Notos is cold no less than Boreas, according to the proverb.” Cf. *Pr.* 26.46’s “if Notos summons a Boreas, a storm comes forthwith.” As far as I can see, there are three possible conclusions one can come to about the identity of the first proverb in §46: (1) It is the same as the first proverb quoted in *Pr.* 26.46. This is the view of Steinmetz (see 1964, 49 n. 4). But aside from the fact that the reference in §46 and the quote in *Pr.* 26.46 both refer to Notos and Boreas, the two are unrelated: they are not discussing the same phenomenon. So I see no reason to connect these two (aside from the fact that the second proverb in each text is the same, which I assume is what led Steinmetz to conclude what he did). (2) The identity of the first proverb cannot be established. This is the view of Wood (1894, 44 n. 60) and Coutant & Eichenlaub (1975, 83), who claim that the proverb is now lost. (3) Both references in §46 are to the same proverb, namely “If a Boreas lays hold of mud, a storm comes forthwith.” This possibility gets some support from the language Theophrastus uses in referring to a proverb for the second time (πάλιν ἢ παροιμία, “again the proverb”), which suggests he is referring to the same proverb again. Nevertheless, I tend to favor view (2).

Three noteworthy textual issues: (1) Like most editors since, I think Turnebus’ suggestion for filling the five letter lacuna in ms. A (διὰ τὸν) works well. (2) I think it is necessary (or at least desirable) to add ὁ before the βορέας in καὶ βορέας ὁ ἐπὶ τῶν πηλῶν. I am in effect following Schneider, who prints ὁ δὲ βορέας in place of ms. A’s καὶ βορέας, except that I do not omit the καὶ.<sup>471</sup>

470 Coutant & Eichenlaub (1975, 83) identify the second proverb referred to by Theophrastus with what they take to be the *one* proverb in *Pr.* 26.46: “The proverb is given as two hexameter lines in *Prob.* 26, 46.” But I agree with Steinmetz (1964, 49) that these are two separate (though related) proverbs.

471 I was happy to learn that I was anticipated in this by Gigon.

(3) Following ἐπὶ τῶν πηλῶν, ms. A has τῶν ὄντων, producing the meaningless (in context) “on the mud of/from the beings.” I think an editor should either bracket these words, as Wimmer does (Heinsius simply omits them), or follow the correction of Anon. and make the paleographically simple emendation of ὄντων to νότων. I was tempted to do the former, but ultimately chose the latter (as less intrusive).<sup>472</sup>

ώσαύτως δὲ καὶ <αἱ> ἀπὸ τῶν ποταμῶν αὖραι ὥσπερ ἐλέχθη πρότερον.

Theophrastus has just claimed that Boreas blowing over mud produces stormy or wintry weather because drenched air is (especially) cold. Here he simply adds that “the breezes from rivers” are cold as well, and for the same reason.

Re. ὥσπερ ἐλέχθη<sup>473</sup> πρότερον: see §§ 24–25.

### *On Winds 47*

After a brief opening sentence marking the transition to a new topic, § 47 is devoted to discussing the reason why “the winds blow from the east in winter and in the morning, and from the west in summer and in the afternoon.”

ἡ μὲν τούτων ιδιότης ἔχει τιν' εὖλογον.

As Theophrastus often uses a μέν—δέ construction to link the end of one discussion and the beginning of another, there is no need to follow Turnebus and add οὖν. In the present case, this construction is used as a transition between a discussion of the particular or peculiar characteristics of Zephyrus (and Caicias), and the assorted discussions in §§ 47–51. As mentioned above (p. 295), that this transition occurs here supports my speculation that § 46 is likely out of place and/or a later addition.

The words ἡ τούτων ιδιότης—“The particular (or ‘peculiar’) character of these (sc. winds)” —recall the opening words (in § 37) of the discussion of Zephyrus

472 Gigon emended the first half of the present passage rather differently: διὰ τοῦτο γὰρ καὶ ὁ νότος ψυχρὸς οὐχ ἦττον τοῦ βορέου κατὰ τὴν παροιμίαν, ὅτι <κινεῖν> ἀέρα κατεψυγμένον ἔτι καὶ ὑγρὸν ὑπὸ τοῦ χειμῶνος. τοιαύτην <γὰρ> ἀνάγκη[ν] τὴν [ἀνα]πνοὴν προσπίπτειν οἷος ἂν ὁ ἀήρ ᾗ. The main differences: He fills the lacuna with <κινεῖν>, places a full-stop after χειμῶνος, inserts a γὰρ into the last sentence, and accepts the change of ms. A's ᾗν to ᾗ (which he, as usual, mistakenly attributes to Schneider).

473 Ms. D's ἐλέχθη is preferable to A's ἐλέγχει; Coutant's ἐλέχθη is I assume a mistake.

and the Caicias: τὰ καθ' ἑκαστον ἴδια, “The particular (or ‘peculiar’) characteristics of each (sc. wind).” And τιν' εὐλογον<sup>474</sup>—in fact this entire sentence—recalls the stated aims of *On Winds*, in the opening chapter: ὅτι δ' ἑκάστοις αἱ δυνάμεις καὶ ὅλως τὰ παρακολουθοῦντα κατὰ λόγον ἀκολουθεῖ, πειράσθαι χρή λέγειν.

ὅτι δὲ τὰ πνεύματα τοῦ μὲν χειμῶνος καὶ τὸ ἐωθινὸν ἀπὸ τῆς ἑω πνεῖ, τοῦ δὲ θερούς καὶ τῆς δείλης ἀπὸ τῆς ἐσπέρας, ἐκείνην τὴν αἰτίαν ὑποληπτέον· ὅταν ὁ ἥλιος ἔλκων μηκέτι κρατῇ, τοτ' ἀφιέμενος ὁ ἀήρ ῥεῖ.

Steinmetz claims this is a very old ‘rule’ (1964, 50 n. 4), but does not cite any texts in support of that claim. It was in any case an issue in the *Peripatos*: Note the opening line of *Pr.* 26.54: “Why, in winter, do the winds blow in the morning and from the east, whereas in summer they blow in the afternoon and from the setting sun?”<sup>475</sup> *Pr.* 26.21 is also relevant—and as it turns out, quite useful in making sense of the less-than-perfect text of § 47. I quote the opening two sentences here: “Why do the winds come from the east in winter, but also from the west in the summer? Is it because, when the sun no longer has mastery, the air is released and flows?”<sup>476</sup>

It is difficult to make sense of what Theophrastus is saying in § 47. For instance, he claims that the winds blow “from the west in summer and in the afternoon”; but earlier he had said that Zephyrus “blows in the afternoon ... in only two seasons of the year, spring and autumn” (§ 38), and that Zephyrus blows “after winter in spring, just when the sun is gaining mastery, and again in autumn, when the sun no longer has mastery” (§ 40). So it does not look like he is discussing Zephyrus in § 47, but other winds from the west (and perhaps local breezes, which might explain why he uses τὰ πνεύματα). But in the remainder of § 47 (as in the parallel discussions in *Pr.* 26.21 & 54) he discusses Zephyrus.

Coutant & Eichenlaub write of § 47 (1975, 84): “In this section the mechanical interchange of air which occurs on a seasonal basis is extended to diurnal behavior. Data do not offer any factual support for this.” Lack of factual support

474 There is no need to follow Turnebus (and most editors since) and emend to τινὰ λόγον: The particular character of these winds involve or have “something reasonable,” an account that makes sense.

475 Διὰ τί τὸν μὲν χειμῶνα πρωτὶ ἀπὸ τῆς ἑω τὰ πνεύματα πνεῖ, τὸ δὲ θέρος δείλης καὶ ἀπὸ δυσμῶν ἡλίου;

476 Διὰ τί προίεται τοῦ χειμῶνος ἀπὸ τῆς ἑω τὰ πνεύματα, τοῦ θερούς δὲ καὶ ἀφ' ἐσπέρας; ἢ ὅτι ὅταν μηκέτι κρατῇ ὁ ἥλιος, ἀφιέμενος ὁ ἀήρ ῥεῖ;

aside, Theophrastus may actually be doing the opposite, namely, attempting to extend his explanation of the daily blowing of western winds or breezes to their blowing seasonally. His account of why Zephyrus blows in the afternoon is quite straightforward (from § 41):

And the blowing is in the afternoon, because of the location. For all winds come with the sun dispersing or vaporizing the moisture or assisting at the beginning. So when the sun reaches this location, so too does the blowing. And it stops during the night because the motive-power of the sun fails.

But he nowhere in that earlier discussion explains his claim that Zephyrus blows in spring and autumn; and in § 47, he may be having similar difficulties explaining why winds blow from the west in summer.

One major textual issue: At the end of this passage (and into the next one), ms. A reads: ὅταν ὁ ἥλιος ἔλκεται μηκέτι κρατεῖν ποτ' ἐφιέμενος ὁ ἀήρ εἰσδυόμενος. I follow Turnebus in emending this, based on a similar passage in *Pr.* 26.21 (ὅταν μηκέτι κρατῇ ὁ ἥλιος, ἀφιέμενος ὁ ἀήρ ῥεῖ): (1) I detach *δυόμενος* from the three letters that precede it (which are then emended from *εἰς-* to *ρεῖ*), thus beginning the following passage with *δυόμενος* (cf. *Pr.* 26.21's *δύνων*, more on this below); (2) I emend *κρατεῖν* to *κρατῇ*, which is required by *ὅταν*; and (3) I emend *ποτ' ἐφιέμενος* to the paleographically similar *τοτ' ἀφιέμενος*.

δυόμενος οὖν καταλείπει (νέφη) ἀφ' ὧν τὰ ζεφύρια. καὶ ὅσον ἂν ἄγῃ τοῖς ἐν τῷ (κάτω) ἡμισφαίριῳ [κατ'] οἴκουσιν (ἐωθινὸν) πνεῦμα γίνεταί· τάναντία δ' ὅταν δύηται ἐν τῷ κάτω μέρει ζεφύρους μὲν ἐκείνοις ποιήσει, το(ῖς) δ' ἐνταῦθεν ἐωθινὸν πνεῦμα ἀπὸ τοῦ συνεπομένου ἀέρος αὐτῷ τούτῳ.

Once again, *Pr.* 26.21 & 54 both have passages comparable to this one (with the former being especially useful in emending the text).

The first line of this passage ("So when [sc. the sun] sinks it leaves behind clouds, from which come Zephyrus winds") should be compared to the explanation in § 41 of why Zephyrus blows in the afternoon (quoted in the previous section), and especially to the claim that "all winds come with the sun dispersing or vaporizing the moisture" (πάντα ... μετὰ τοῦ ἡλίου διαχέοντος τὸ ὑγρὸν ἢ ἀτμίζοντος γίνεταί). Theophrastus seems to be making the same point in connection with Zephyrus, but in a different way (i.e. in terms of the sun leaving behind clouds from which Zephyrus comes).

I take the remainder of the passage to be saying that what is true for 'us' (i.e. the Greeks) is true for the rest of the world as well, *mutatis mutandis*: the

west being for ‘them’ (i.e. for any other people) wherever the sun happens to set in relation to where they are; and thus, the west winds come from there for them.<sup>477</sup>

Re. ἐν τῷ (κάτω) ἡμισφαιρίῳ: Steinmetz (1964, 50 n. 5) is right that for this passage to make sense, ἐν τῷ (κάτω) ἡμισφαιρίῳ must refer to the *western* hemisphere, not (as one might naturally assume) to the southern.<sup>478</sup> It is the lower hemisphere in the sense of being that hemisphere where the sun is going down. Wood (1894, 45 n. 61) makes the same point: “The ‘lower hemisphere’ does not mean that below or to the south of the equator; but that hemisphere on which the sun shines between our sunset and our sunrise.”

The emendations to this passage are based on *Pr.* 26.21.942b5–10:

δύνων τε οὖν καταλείπει νέφη, ἀφ’ ὧν οἱ ζέφυροι· καὶ ὅσον ἂν ἐπαγάγη ἐκεῖνοις τοῖς ἐν τῷ κάτω ἡμισφαιρίῳ οἰκοῦσιν, ἐωθινὸν πνεῦμα γίνεταί. τάναντία δέ, ὅταν δύνῃ ἐν τῷ κάτω μέρει, ἐκεῖνοις τε ζεφύρους ποιήσει καὶ ἐνταῦθα ἐωθινὸν πνεῦμα ἀπὸ τοῦ ἐπομένου ἀέρος αὐτῷ.

Relevant words are in italics; see the *apparatus criticus* for further details.

Re. αὐτῷ τούτῳ: Schneider’s division between §§ 47 & 48 (accepted by all editors since) involves disregarding where one clause ends in ms. A (i.e. with αὐτῷ τούτῳ), and another begins. That is, he ends § 47 with αὐτῷ, and begins § 48 with (διὰ) τοῦτο (in place of τούτῳ).<sup>479</sup> I find this unnecessary, and retain the manuscript reading, which is why in this edition § 47 ends with αὐτῷ τούτῳ, and § 48 begins with καὶ ἐάν λάβῃ κτλ.

### *On Winds 48*

§ 48, which consists of two parts, represents another particularly odd chapter division by Schneider (aside from what I discussed at the end of the previous section): The first part is a continuation of or addendum to § 47, from which it should not have been separated (concerning why winds blow from the east in

477 Cf. Steinmetz (1964, 50): *Daran schließt sich, eine Betrachtung über die Relativität der Begriffe Ostwind, Westwind, Morgenwind, Abendwind: Der Wind, den die Sonne bei ihrem Untergang zu uns entsendet, ist West und Abendwind; zur gleichen Zeit sendet sie der “westlichen” Hemisphere Ost und Morgenwind.*

478 Flashar (1962, 682–683) takes ἐν τῷ κάτω ἡμισφαιρίῳ in *Pr.* 26.21 to refer to *die südlichen Hemisphäre*.

479 Schneider is following Bonaventura, who bases the change on *Pr.* 26.21.



winter and in the morning, and from the west in summer and in the afternoon). The second part is not related to the first, as it discusses why Notos blows at the time of the Dog Star (which I regard as an entirely different issue).

καὶ ἐὰν λάβῃ πνέοντα ἄλλον ἄνεμον αἰρομένου μείζω(ν) γίνεται διότι προσέθηκεν.

I follow earlier editors and emend this line based on a similar passage in *Pr.* 26.21,<sup>480</sup> printing αἰρομένου μείζω(ν) in place of ms. A's δς μὲν οὐ μείζω: "And if (Zephyrus) picks up another (local) wind blowing as (*the sun*) rises, it becomes greater, because (something) has been added (to it)." I think it more likely that δς μὲν οὐ is a corruption of αἰρομένου than vice versa. Moreover, though one can make sense of δς μὲν οὐ ("which, however, does not become greater" etc.), it does not fit this context.

ὥσπερ <δ'> ὁ ζέφυρος αἰεὶ καὶ πόρρω πνεῖ τοῖς ἐσπερίοις, οὕτω τοῖς κάτω πρὸς τὴν ἡμετέραν ἔω, ἐκείνων δ' ἐσπέρων, ἄλλα πνεύματα. ταῦτα μὲν οὖν παρὰ τὴν ὁμοιότητα παρ' ἐκατέροις, ἥ τε τοῖς ἄκροις ἐκάστων πνοὴ γίνεται μὲν ὥσπερ καὶ τὰ ὕδατα καὶ τὰ ἄλλα κατὰ συμβεβηκός, οὐ μὴν κατ' ἀκρίβειαν, ἀλλ' ὥς ἐπὶ τὸ πᾶν.

§ 47 ends: "when the sun sinks in the lower part it produces Zephyrus winds for those people, whereas for those here it produces a morning breeze that originates from the air that accompanies just this kind of wind." In the present passage, Theophrastus *appears* to elaborate on this. But in fact, he does not add to that discussion at all—except to say that the same thing is true of rain in the different regions. §§ 47–48 actually seem to me to contain two passages making largely the same point, with the line about picking up another wind and becoming greater sandwiched between them. I think this is another example of the unpolished or unfinished state of *On Winds*.

Re. τοῖς κάτω, "for those in the lower (hemisphere)": See above (p. 302) on ἐν τῷ (κάτω) ἡμισφαίριῳ.

Re. τοῖς ἄκροις ἐκάστων, "at the extreme times of each": That is, at the rising and the setting of the sun. Schneider's addition of ἐν is in fact counter-productive, as it suggests duration, whereas the dative of time without ἐν indicates a particular point in time, which I believe is more what Theophrastus is conveying.

480 διὰ τοῦτο καὶ καταλάβῃ ἄλλον ἄνεμον, μείζων γίνεται αἰρομένου, ὅτι προσέθηκεν. ("For this reason too, if it (sc. Zephyrus) overtakes another wind, it becomes greater as the sun rises, because it adds something.")

Re. οὐ μὴν κατ' ἀκρίβειαν, ἀλλ' ὡς ἐπὶ τὸ πᾶν, “not precisely, but on the whole”: On the lack of precision in the study of winds, see pp. 86–87. There is a noteworthy textual issue here: Ms. A has γ' ἀκρίβειαν ἄλλως κτλ. Schneider, Wimmer, and Coutant have all accepted the suggestion of Furlanus and inserted κατ' between γ' and ἀκρίβειαν. I prefer to *replace* γ' with κατ', however, as slightly less intrusive. With Schneider, Wimmer, and Coutant, I follow Turnebus in emending ms. A's ἄλλως to ἀλλ' ὡς.

εἶωθε δ' ὥσπερ ἄλλο τι τῶν τεταγμένων καὶ ἐπὶ κυνὶ ὁ νότος πνεῖν. αἴτιον δ' ὅτι θερμὰ τὰ κάτω τοῦ ἡλίου παρόντος, ὥστε γίνεται πολλὴ ἀτμὶς. ἔπνεον δ' ἂν πολλοὶ μὴ κωλυόμενοι τοῖς δ' ἐτησίαις· νῦν δ' οὗτοι διακωλύουσιν.

There is a fundamental corruption in ms. A, obscuring the very subject matter of the passage. Where I print κυνὶ ὁ νότος—based on *Pr.* 26.12, as first suggested by Bonaventura (1593, 197)—ms. A. has the impossible κοινηνότε.<sup>481</sup> But ἐπὶ κυνί (“at the time of the Dog-star”) is surely right. There are two relatively lengthy chapters devoted to this issue or problem in *Pr.* 26 (12 & 32). Ch. 12 is especially relevant, as its opening matches our passage closely and has been used to emend the text:

Why does Notos blow at the time of the Dog-star,<sup>482</sup> and (why does) this occur in an orderly way just like any other? Is it because the lower regions are hot, as the sun is nearby, so that a lot of vapor is generated? And many (Notos winds) would blow, if not for the Etesians. But as it is these do hinder (them).<sup>483</sup>

941a37–b1

But whereas Theophrastus does not (in what survives) continue his discussion of this issue, *Pr.* 26.12 does (in a different direction) for over twenty more Bekker-lines (941b1–23), following the question “Or is it because there are signs at the setting or rising of all stars, and not least at this one?”<sup>484</sup>

481 Schneider printed τῷ κυνὶ ὁ νότος (presumably following a suggestion of Bonaventura), and I omit the τῷ, which has no manuscript support and is unnecessary. Gigon had done the same. Turnebus suggests reading ἐκείνη for κοινήν (cf. ἐκείνην Anon.).

482 I.e., when Sirius rises, in early July.

483 Διὰ τί ἐπὶ κυνὶ ὁ νότος πνεῖ, καὶ τοῦτο ὥσπερ τι ἄλλο γίνεται τεταγμένως; ἢ διότι θερμὰ τὰ κάτω, τοῦ ἡλίου παρόντος (πόρρω ὄντος mss.), ὥστε πολλὴ ἡ ἀτμὶς γίνεται; καὶ πολλοὶ δὴ ἔπνεον, εἰ μὴ διὰ τοὺς ἐτησίαις. νῦν δὲ οὗτοι κωλύουσιν.

484 ἢ ὅτι ἐπὶ πᾶσι μὲν σημαίνει τοῖς ἀστροῖς δυομένοις ἢ ἐπιτέλλουσιν, οὐχ ἥμιστα δὲ ἐπὶ τούτῳ;

Textual problems aside, I think the meaning of the passage and the issue it concerns are pretty straightforward: Why does Notos—which normally blows “throughout winter and at the beginning of spring and the ending of autumn” (§ 10)—also (καί) regularly blow at the rise of the Dog-star (in early July)? The reason is that the south is especially hot in the summer because the sun is nearby, and thus more vapor than usual is generated, and that means more winds from the south. But this explanation creates another problem (which I think is implied in our condensed passage): Why then do Notos winds not blow continually in the summer? The answer: “many would blow, if not hindered by the Etesians.” And recall Aristotle: “The Etesians blow after the summer solstice and the rise of the Dog-star” (*Mete.* 2.5.361b35–36).

Re. ὥσπερ ἄλλο τι τῶν τεταγμένων, “just like any other of the orderly (occurrences)”: a noun must be supplied for τῶν τεταγμένων. Steinmetz and Coutant take it to be ‘winds,’<sup>485</sup> but it is not the case that all the ‘orderly’ winds blow at the time of the rising of the Dog-star. For instance, Zephyrus blows “in only two seasons of the year, spring and autumn” (§ 38). So I take the same approach as Wood, who renders the phrase “just like any other periodic event.” Theophrastus might have in mind weather signs (as they are discussed, in connection with the present issue, in *Pr.* 26.12 & 32). But I think it just possible that ὥσπερ ἄλλο τι τῆς τεταγμένης (emended here to τῶν τεταγμένων) is the mangled remains of some reference to the Etesians, and that Theophrastus had claimed that Notos winds blow regularly at the time of the Dog-star, just as the Etesians do. So an editor might consider the conjecture ὥσπερ ἄλλο(ι) τε (καί ἐ)τησ(ιαι) τεταγμένως, “just as other (winds), including Etesians, (blow) regularly” (sc. at the time of the Dog Star). On ὥσπερ + ἄλλοι (*vel sim.*) + τε καί in Theophrastus, see *CP* 6.10.8 and *HP* 8.2.7, 9.9.1. In the end I do not emend the text this way, as not only is it speculative, but if correct it would mean that the textual corruption is likely quite old, from before the time that the author of *Pr.* 26.12 commented on or raised a question about our passage, as it has ὥσπερ τι ἄλλο γίνεταί τεταγμένως.

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(941b1–3). This question is the focus of *Pr.* 26.32, which begins: “Why does Notos blow at the time of the Dog-star? Is it because there are signs at the setting or rising of all stars, and not least at this one?” (Διὰ τί ἐπὶ κυνὶ (ὁ) νότος πνεῖ; ἢ ὅτι ἐπὶ πάσι μὲν σημαίνει τοῖς ἄστροις δυσόμενοις ἢ ἐπιτέλλουσιν, οὐχ ἥκιστα δὲ ἐπὶ τούτῳ; [944a4–6]). Note that in Bekker’s edition *Pr.* 26.32 is five lines long (944a4–9), though in two major manuscripts it continues for eighteen more lines (= *Pr.* 26.12.941b6–23). I present the longer version in my Loeb edition (see 201a, 2: 186–189).

485 Steinmetz (1964, 51): *Es pflegt wie einer der in regelmäßiger Ordnung wehenden Winde beim Sirius der Notos zu wehen.* Coutant (1975, 49): “The south wind blows, like any other of the regular winds, when Sirius rises.”

Re. τὰ κάτω, “the lower (areas)”: There is no contradiction in Theophrastus using κάτω in § 47 to refer to the Western hemisphere, and in § 48 to refer to the lands to the south (though not to the southern hemisphere). Its meaning is determined by context. But such a worry may be why Wood renders τὰ κάτω here “the lower part of the atmosphere.”<sup>486</sup>

A remaining noteworthy textual issue: Ms. A’s πόρρω ὄντος is impossible, for were it accepted, Theophrastus would be claiming that the lower regions are hot because the sun is far away. So an editor has two choices: Schneider’s (οὐ) πόρρω ὄντος (1821: 5, 162) or Furlanus’s παρόντος. I think this is a coin toss, though I now<sup>487</sup> favor the latter, as I think “is nearby/present” is a bit more likely than “is not far away.”

### *On Winds 49*

Theophrastus turns to two related or corollary issues or problems: Why does the nighttime Boreas stop blowing before three days have ended? And, why is the same thing not true for the nighttime Notos? A further reason for why the nighttime Boreas stops within three days is given in the first section of § 50. *Pr.* 26.14 asks “Why does the nighttime Boreas cease on the third day?” and its two brief responses provide a highly condensed summary of the explanations given in § 49 and § 50: “Is it because it comes from a small and weak source, and the third day is critical? Or is it because its out-pouring is concentrated, like that of cloud-winds? Therefore, its cessation is quick.”<sup>488</sup> Theophrastus says it is both.<sup>489</sup>

486 Cf. Coutant & Eichenlaub (1975, 49 & 84) “the southern areas,” Steinmetz (1964, 51) *der Süden*.

487 The editor of *Pr.* 26.12 is faced with the same textual issue, as the paradosis gives πόρρω ὄντος there as well. In my Loeb edition I inserted οὐ, but I have had a change of heart.

488 Διὰ τί ὁ νυκτερινὸς βορέας τριταῖος λήγει; πότερον ὅτι ἀπὸ μικρᾶς καὶ ἀσθενοῦς ἀρχῆς, ἢ τρίτῃ δὲ κρίσιμος; ἢ ὅτι ἀθρόος ἢ ἔκχυσις, ὥσπερ τῶν ἐκνεφίων; ταχεῖα οὖν ἢ παῦλα.

489 Steinmetz (1964, 51): *Charakteristisch ist, daß zwei mögliche Erklärungen angegeben werden: a) Nachts wird im Norden nur geringe Anathymiasis frei, b) der dichte Ausbrüche einer Strömung ist bald zu Ende; die zweite Erklärung scheint ein Nachtrag zu sein.* The latter is the opening line of § 50.

οἱ δὲ νυκτερινοὶ βορέαι τρίταιοι πίπτουσιν, ὅθεν ἡ παροιμία λέγεται, ὡς «οὔποτε νυκτερινὸς βορέας τρίτον ἔκετο φέγγος», διότι ἀσθενῇ τὰ πνεύματα γίνεται τὰ ἀπὸ τῆς ἄρκτου νύκτωρ ἀρξάμενα.

Once again, Theophrastus attempts to explain a meteorological *endoxon* held in the form of a proverb: “never does a nighttime Boreas reach third light”—a poetical way of saying that a Boreas wind that begins to blow at night never blows so long as to ‘reach’ a third sunrise. If the night during which this wind begins to blow is Night 1, then the nighttime Boreas never reaches Day 3:

Night 1 → Day 1 → Night 2 → Day 2 → Night 3 → Day 3<sup>490</sup>

So the nighttime Boreas at most blows for much closer to two days than it does for three.

The quotation of the proverb is followed by a rudimentary explanation: “winds from the arctic beginning at night are weak.” This brief account is further explained in the sentence that follows it.

*Pr.* 26.9 is related to this and the following passage, and has helped editors make sense of § 49:

Why do they say: “never does a nighttime Boreas reach third light”? Is it because the winds from the arctic are weak, when they come at night? Indeed, a sign that the amount of air that was moved is not great is the fact that it blew at a time when there was little heat; and little (heat) moves little (air). And (they) all end in three (days), and the slightest in the first triad, and that is what this wind does.<sup>491</sup>

Note that *Pr.* 26.9 allows us to correct the text of § 49: ἔκετο in place of ms. A’s καὶ τὸ.

490 I believe this is the triad (the three night-day pairs) referred to in the next passage of § 49 (and in *Pr.* 26.9).

491 Διὰ τί λέγεται «οὔποτε νυκτερινὸς βορέας τρίτον ἔκετο φέγγος»; ἢ διότι ἀσθενῇ τὰ πνεύματα τὰ ἀπὸ τῆς ἄρκτου, ὅταν ᾗ νυκτερινά; σημεῖον γάρ ὅτι οὐ πολλὸς ὁ κινηθεὶς ἀήρ, τὸ τηνικαῦτα πνεῦσαι, ὅτε ὀλίγη θερμότης ὑπῆρχεν· ἢ δὲ ὀλίγη ὀλίγον ἐκίνει ἀέρα. τελευτᾷ δὲ ἐν τρισὶ πάντα, καὶ τὰ ἐλάχιστα ἐν τῇ πρώτῃ τριάδι, ὥστε καὶ τοῦτο τὸ πνεῦμα.

φανερὸν γὰρ ὡς (οὐ) πολὺς ὁ κινήθεις ἀήρ ὅταν τηνικαῦτα πνέῃ τῆς θερμότητος ὀλίγης οὔσης· ὀλίγον γὰρ ὀλίγη κινεῖ. τελευτᾷ δὲ πάντα ἐν τρισί, καὶ τὰ ἐλάχιστα δ' ἐν τῇ πρώτῃ τριάδι.

Given Theophrastus' conception of wind, it makes sense that little air is moved when there is little heat.<sup>492</sup> And that there is little heat is a feature of the nighttime Boreas originating in the cold north *and* without the benefit of any sunshine. So it also makes sense that such winds are weak and of relatively short duration. But this does not explain why such winds never “reach third light.” Perhaps Theophrastus is explaining the *endoxon* to the extent that he can, without accepting the proverb's characterization of the phenomenon in detail or explaining the specified duration.

Each half of the last sentence of our passage requires further clarification. Regarding τελευτᾷ δὲ πάντα ἐν τρισί, I think Coutant & Eichenlaub are right to reject Flashar's claim<sup>493</sup> that “the three-day term comes under the Pythagorean rule of three explicated in *De Caelo* 268a6–14” (1975, 84). This does not fit Theophrastus' usual methodology. But Flashar's understanding of the passage is supported by one possible way of construing τελευτᾷ δὲ ἐν τρισί πάντα (*Pr.* 26.9) / τελευτᾷ δὲ πάντα ἐν τρισί (§ 49), i.e. if one renders it with something like “Now all things end in threes” (as I did in my *Loeb Problems*) or *Es enden aber alle Vorgänge bei einer Dreizahl* (Flashar 1962, 218). However, I now take this phrase to refer specifically to the nighttime Boreas and the number of days within which it stops blowing: “And (they) all end in (i.e. within) three (days).” But how are we to understand ἐν τῇ πρώτῃ τριάδι in the second half of the line? Wood translates it “early on the third day.” But I think that, on the contrary, only the *strongest* of the nighttime Boreas winds will last till early on the third day. Recall the triad:

Night 1 → Day 1 → Night 2 → Day 2 → Night 3 → Day 3

Early on the third day in this scheme is sometime during Night 3, and no nighttime Boreas lasts longer than that. Therefore, though this is embellishing the Greek, I take ἐν τῇ πρώτῃ τριάδι to be a condensed way of saying “in the first (part of the) triad,”<sup>494</sup> and so sometime during the first Night-Day pair. In other words, the weakest of the nighttime Boreas winds do not last more than a day.

492 Thus Turnebus' insertion of οὐ is necessary, as in *Pr.* 26.9 (see the previous note).

493 Flashar (1962, 680), discussing *Pr.* 26.9.

494 Cf. Coutant & Eichenlaub (1975, 84–85): “We are inclined to take the adjective [i.e. πρώτῃ] partitively but to derive from the ‘weakest’ the shortest possible term. Hence ‘on the first day of the triad.’”

ὅτι δ' οὐκ αὐτὸ τοῦτο συμβαίνει καὶ ἐπὶ τοῦ νότου νυκτερινοῦ πνεύσαντος, αἴτιον ὅτι ἐγγὺς ὁ ἥλιος ἐστὶ τῆς πρὸς νότον χώρας καὶ ἀλεεινότεραι αἱ νύκτες ἐκεῖ (ἢ) πρὸς ἄρκτον αἱ ἡμέραι, (ὥστε πολὺς) ὁ κινούμενος ἀήρ καὶ οὐδὲν ἔλαττον ἢ μεθ' ἡμέραν. ἀλλ' ὅσῳ θερμότεραι αἱ ἡμέραι, κωλύουσι (μᾶλλον) πνεῖν [αἱ] ξηραίνουσαι τὰς ὑγρότητας.

The same thing referred to here would be the nighttime Notos always blowing for fewer than three days. This does not happen, because even when the sun is absent, it is much warmer in the south than it is where Boreas originates, so that sufficient vapor is generated for the production of winds that are not weak. In fact (this is the point of the last line), it is sometimes so hot in the south (even at night) that nighttime Notos winds do not blow at all, through the heat drying up all of the moisture (rather than causing vapor to rise out of it).

There is a puzzle concerning the relationship between this passage and *Pr.* 26.11. The latter begins by asking a question about a different issue: “Why does Notos blow ⟨no⟩ less after wintery/stormy nights than after wintery/stormy days?”<sup>495</sup> The author’s answer is close to our passage:

Is it because even at night the sun is close to the region that is toward Notos and the nights there are warmer than the days in the arctic, so that much air is moved and no less than by day? But the hotter days prevent more blowing, by drying the moisture.<sup>496</sup>

I think there are two possible explanations for these two passages being in effect the same answer to different questions: (1) the author of *Pr.* 26.11 used our *On Winds* passage to answer a different but similar question; (2) this passage was taken from somewhere else (*Pr.* 26.11 or perhaps its source) and inserted into *On Winds*, in what had been a discussion of Boreas alone, to note a contrast between Notos and Boreas. I favor (1) as I think the passage is a better fit in *On Winds* than it is in *Pr.* 26.11, because the last sentence makes little sense in a discussion of Notos winds blowing after a wintery or stormy night. In any case, the *Pr.* 26.11 text is superior in certain respects to ms. A’s; and given the obvious connection between the two, I think it can be used to solve some of the textual

495 Διὰ τί ὁ νότος (οὐχ) ἦττον μετὰ χειμερινὰς νύκτας πνεῖ ἢ μεθ' ἡμέρας; It is clear in what follows that inserting οὐχ, as first suggested by Septalius, is necessary.

496 ἢ ὅτι καὶ τῆς νυκτὸς ὁ ἥλιος ἐγγὺς ἐστὶ τῇ πρὸς νότον χώρᾳ καὶ ἀλεεινότεραι αἱ νύκτες ἐκεῖ ἢ πρὸς ἄρκτον αἱ ἡμέραι, ὥστε πολὺς κινεῖται ὁ ἀήρ καὶ οὐθὲν ἐλάττων ἢ μεθ' ἡμέραν; ἀλλ' αἱ θερμότεραι ἡμέραι κωλύουσι μᾶλλον πνεῖν, ξηραίνουσαι τὰς ὑγρότητας.

problems in our passage. In this connection, note the insertions into my text and see the *apparatus* for details.

### *On Winds 50*

This chapter consists of two parts that do not form one integrated discussion: The first (which goes with §49) provides another explanation for why the nighttime Boreas stops within three days. The second—and the bulk of the chapter—is a discussion of the proverb “Notos likes to blow after frost.”

τάχα δὲ ἀκχείνου τοῦ βορέου (*lac. 6 litt.*) ὅτι ἀθρόως ἢ ἔκχυσις, ὥσπερ τῶν ἐκνεφίων (*lac. 6 litt.*) ταχεῖα δ' ἢ παύλα τῶν ἀθρόων· «ἀσθενοῦς (γάρ) ἀρχῆς (οὐδὲν) [τὸ] μέγεθος».

The opening line is lacunose in ms. A (though Turnebus ignores both lacunae, and he may have been right to do so). In any case, in its present state and considered on its own, it is difficult to determine whether the line goes with the discussion that precedes it or the one that follows it, or whether it is the remnant of some separate discussion. But *Pr.* 26.14 (quoted above, p. 306) makes it clear that the opening of §50 is part of the preceding discussion. This *problema* asks why the nighttime Boreas ceases on the third day. Its first response is a condensed version of the explanation in §49. Its second corresponds to the opening of §50: “Or is it because its out-pouring is concentrated, like that of the cloud-winds? Therefore, its cessation is quick.”<sup>497</sup>

This explanation of the nighttime Boreas wind ceasing within three days seems to be based on two premises: (1) that the nighttime Boreas is weak (or weaker than the daytime Boreas), and (2) “that its out-pouring is concentrated,” which I take to have some connection to the claim that “Boreas is powerful straightaway when it begins” (§5), although the reference to cloud-winds may indicate some other connection.

Re. «ἀσθενοῦς (γάρ) ἀρχῆς (οὐδὲν) [τὸ] μέγεθος»: Ms. A's ἀσθενοῦς ἀρχῆς τὸ μέγεθος is generally interpreted as a proverb, and has been much emended by editors for both meter and meaning. I have followed Wimmer in adding γάρ and οὐδὲν and bracketing the τό (which he omits). I take the weak (ἀσθενοῦς) source to be the cold north at night, from which the nighttime Boreas comes. Wood (1894, 46 n. 63) believes this line, as it comes down to us in the

497 ἢ ὅτι ἀθρόος ἢ ἔκχυσις, ὥσπερ τῶν ἐκνεφίων; ταχεῖα οὖν ἢ παύλα.



manuscripts, “is a corruption of the following Iambic verse: ἀπ’ ἀσθενοῦς γὰρ οὐδὲν ἐστ’ ἀρχῆς μεγάλ.”

Re. ὥσπερ τῶν ἐκνεφίων: ὁ ἐκνεφίας, ‘the out-of-cloud (wind),’ is often translated ‘hurricane’ or ‘squall’; but I render it ‘cloud-wind.’ See especially Arist. *Mete.* 3.1.371a1–5, quoted above, p. 248 n. 362. The point in our passage is that Boreas bursts out at the beginning, like such a wind.

If one ignores the first lacuna, the line would read something like “And perhaps (a characteristic) of this (feature) of Boreas is that” etc. If one fills the lacuna with the best suggestion I know of (Furlanus’ αἴτιον), the line would read something like “And perhaps (a cause) of this (feature) of Boreas is that” etc. The second lacuna in ms. A comes almost directly under the first, and I wonder whether it is not a scribal error. This possibility makes an even stronger case for ignoring it. Further support for this comes from *Pr.* 26.14: Compare ... τῶν ἐκνεφίων (*lac. 6 litt.*) ταχέια δ’ ἢ παῦλα ... (§ 50) and ... τῶν ἐκνεφίων; ταχέια οὖν ἢ παῦλα ... (*Pr.* 26.14).

ἀεὶ δ’ ὥς ἐπίπαν λαῦρος (ὁ νότος) μετὰ δὲ χιόνα καὶ πάχνην, ὅθεν καὶ ἡ παροιμία· «φιλεῖ δὲ νότος μετὰ πάχνην», ὅτι πέψεώς τινος γενομένης καὶ ἀποκαθάρσεως ἐκ-  
τερόν τι πίπτει.

Every editor after Furlanus has taken the phrase ἀεὶ δ’ ὥς ἐπίπαν λαῦρος to refer to Boreas and the rest of the chapter to refer to Notos, thus marking a transition of sorts between the former discussion and this one. This is understandable, as no wind is specified in the sentence before the mention of the proverb (which refers to Notos), and Boreas was just described as pouring out all at once. Nevertheless, I think this reading is likely mistaken, and that Furlanus was correct to take the entire opening line to refer to Notos. Furlanus (1605, 68) prints ἀεὶ δ’ ὥς ἐπίπαν λαῦρος (ὁ νότος), μετὰ δὲ χιόνα καὶ πάχνην, and translates this and what follows *plurimum post pruina, & niuem Auster vehemens, unde & prouerbiam, spirat Auster post pruina*. I believe this is the correct approach.

Steinmetz finds it remarkable that such precipitation as snow, frost, and hail are considered the result of πέψις and κάθαρσις.<sup>498</sup> This is no doubt because in Aristotle πέψις (‘concoction’ or ‘cooking’) always involves heat, and its absence (ἀπεψία) is the result of cold or of insufficient heat (see especially *Mete.* 4.2–

498 Steinmetz (1964, 51): *Bemerkenswert an der Lösung ist, daß Schneefall, Reifbildung, Hagel und ähnliche atmosphärische Niederschläge als Folge einer πέψις und κάθαρσις angesehen werden.*

3). For instance, πέψις is the means by which the body transforms blood into seed, and the contributions of both the male and the female in generation into a fetus, and this involves heat (see *GA* 1.12 and *passim*).<sup>499</sup> But Theophrastus seems to be using πέψις differently (here) to refer to any processing of a liquid into a solid—water into snow, frost, and hail—ignoring its usual connection to heat.<sup>500</sup> And that he mentions rain later in the passage implies that πέψις is also meant to cover the process by which vapor becomes cloud and then rain. So I would not say that precipitation is the result of πέψις (cf. Steinmetz, ... *als Folge einer πέψις und κάθαρσις*), but that πέψις is Theophrastus' word for precipitation. Further, precipitation is not the result of κάθαρσις, κάθαρσις (here referring to the clearing of the skies after a storm) is the regular result of precipitation. In fact, in *Pr.* 26.3, which asks "Why does Notos blow after frost?", the author says that "In general, snow and hail and rain and every such purification is a *sign* of concoction."<sup>501</sup> So it seems that each of these can be understood *qua* precipitation (as a material processed from vapor to water, and/or from water to one of its solid forms) or *qua* purification (as a substance that falls through the sky thus clearing it).

So Theophrastus is saying that the falling of precipitation and the clearing of the skies that follows generates air-flow (note the use of τὰ πνεύματα later in the chapter): this is the something else falling that he refers to (ἐκάτερόν τι πίπτει). He must be maintaining that there is a direct causal connection between the moving of the precipitate down through the sky (which clears it) and the motion of the air which becomes wind. Why the wind that follows snow and frost is specifically Notos is explained next.

One may well wonder why *frost* is included with rain, snow, and hail as forms of *purification* (which requires falling through the sky). Theophrastus appears to accept much of Aristotle's account of dew and frost (in *Mete.* 1.10): they are moisture that has evaporated during the day but falls when cooled during the night after not rising too far. Here is Theophrastus' account of the cause of frost, in *Metars.* 12:

Frost arises when the dew freezes on account of coldness. The reason for the whiteness of frost is the air which becomes mixed with it; for what is snow above exists below as frost and what is rain above exists below

499 In *Pr.* 20, it refers to the cooking of food in the normal sense, as well as to the body's processing of food once it has been eaten. See Wilkins (2015).

500 See Coutant & Eichenlaub (1975, 85).

501 Διὰ τί νότος πνεῖ μετὰ πάχνην; ... ὅλως δὲ καὶ ἡ χιῶν καὶ ἡ χάλαζα καὶ τὸ ὕδωρ καὶ πάσα ἡ τοιαύτη ἀποκάθαρσις πέψεως σημείον ἐστίν. (940b8 & 12–14)

as dew. Therefore we may say that frost arises because of the freezing of watery vapor before it compacts and becomes water.<sup>502</sup>

DAIBER 1992, 268

As Daiber points out (1992, 278), what is new here (compared to Aristotle's account) is the explanation of the color of frost.

Note that the proverb in § 50 (φιλεῖ δὲ νότος μετὰ πάχνην) is contradicted by *Sign.* 34.247: "After snow a Notos tends to blow, after frost a Boreas" (μετὰ χιόνα νότος, μετὰ πάχνην βορέας εἴωθε πνεῖν).

μετὰ δὲ τὴν πέψιν καὶ τὴν ἀποκάθαρσιν, εἰς τοῦναντίον ἢ μεταβολή· βορέα δ' ἐναντίος ὁ νότος.

This passage clearly implies that Boreas is responsible for frost, snow, and hail (but not necessarily rain), presumably because it brings cold air. In Theophrastus' *Metarsiology*, there is no mention of Boreas (or any other wind) in the brief accounts of snow (9), hail (10), or frost (12). Powerful wind squeezing clouds is the reason given for heavy rains (8). What is unclear is why, "after the concoction and the purification, the change is into the opposite"—i.e., why Boreas which brings the cold air is followed in turn by Notos. We can merely speculate (but see § 52, on the change in the order of the winds): Boreas which brings the cold air causing for instance a hail or snow storm blows itself out, which is followed by air being moved downward with the falling hail or snow, which causes a vacuum of sorts, which is filled by wind coming from the south (i.e. by a Notos).

One noteworthy textual issue: In place of ms. A's βορέας I print ms. B's dative βορέα, which I think is not only superior in its own right but is supported by a parallel passage in *Pr.* 26.3: ἐναντίον δὲ τῷ βορρᾷ νότος ἐστίν (940b10–11).

δι' αὐτὸ τοῦτο ὅτι μετὰ τὸν ὑετὸν καὶ τὴν χάλαζαν καὶ τὰς τοιαύτας ἑτινάς ὥς ἐπὶ τὸ πολὺ πίπτει τὰ πνεύματα. πάντα γὰρ ταῦτα καὶ τὰ τοιαῦτα πέψεις καὶ ἀποκαθάρσεις τινές εἰσιν.

Theophrastus here merely extends what he has said about snow and frost to other forms of precipitation: "rain and hail and such things." I am not quite sure what τὰς τοιαύτας adds or refers to, as snow, frost, rain, and hail seem to cover

502 What I quote here is the whole of ch. 12. I have made one revision to Daiber's translation, changing in every case 'hoar-frost' to 'frost'.

all the forms of precipitation discussed by Aristotle and Theophrastus (aside from dew). Perhaps Theophrastus has in mind sleet and mixtures of rain and snow etc.<sup>503</sup> The answer might come from the second half of *Pr.* 26.3, which is comparable to our passage:

For the same reason as well a Notos blows after snow. In general, snow and hail and rain and every such purification is a sign of concoction. And this is why after showers and such storms the winds (or ‘air-flows’) fall.<sup>504</sup>

Turnebus thought that ἀποκαθάρσεις (presumably from *πάσα ἡ τοιαύτη ἀποκάθαρσις*) or χειμασίας (from *τάς τοιαύτας χειμασίας*) should be added to the *τινάς* in our passage; Schneider printed the latter (see also Bonaventura 1593, 203), Coutant printed the former. Wimmer, however, replaced *τινάς* with *χειμασίας*. One of these may well be correct, though I would favor replacing *τινάς* over adding to it (viewing it as the possible remnant of the corruption of the original word). As “rain and hail and such purifications” or “... and such storms” both work, I have not emended my text but chose rather to obelize *τινάς* (which I leave untranslated).

Based on *Pr.* 26.3 (διὰ ταυτό), Bonaventura (1593, 203) proposed emending the manuscripts’ τὸ αὐτὸ το δι’ αὐτὸ at the opening of our passage. I have printed this emendation.

### *On Winds* 51

§ 51 discusses a ‘regional’ proverb, i.e. one contrasting the effect of two winds (Lips and Argestes) not generally but in particular locations (Cnidus and Rhodes).

ἐπεὶ δὲ πρὸς τὰς χώρας ἑκάστοις καὶ τοὺς τόπους ἐπινεφῆ καὶ αἶθρια, διὰ τοῦτο καὶ τῶν ἐν παροιμίᾳ λεγομένων πρὸς τινὰς τόπους εἰσὶν, ὥσπερ τοῦ ἀργέστου καὶ λίβου, ἢ χρώνται μάλιστα περὶ Κνίδον καὶ Ῥόδον· «λίψ ἄνεμος ταχὺ μὲν νεφέλας ταχὺ δ’ αἶθρια ποιεῖ, ἀργέστη δ’ ἀνέμῳ πᾶσ’ ἔπεται νεφέλη».

<sup>503</sup> Modern meteorologists are more comprehensive. Spellman (2013, 61) lists the following forms of precipitation: mist, drizzle, rain, sleet, glaze, rime, snow, hail, and graupel.

<sup>504</sup> διὰ ταὐτὸ δὲ καὶ μετὰ τὴν χιόνα πνεῖ νότος. ὅλως δὲ καὶ ἡ χιών καὶ ἡ χάλαζα καὶ τὸ ὕδωρ καὶ πᾶσα ἡ τοιαύτη ἀποκάθαρσις πέψεως σημείον ἐστίν. διὸ καὶ μετὰ τὸν ὕετον καὶ τὰς τοιαύτας χειμασίας πίπτει τὰ πνεύματα.

Location as a major factor contributing to the attributes of winds is stressed throughout this work, and especially at the beginning (see §§ 2–9). As the same wind can act differently when blowing into different locations (depending on the distance from its location of origin and differences in the geographical features of the regions into which it blows), it should be no surprise that there are regional proverbs describing the features of winds that may not be applicable elsewhere.

The proverb (*Adesp. eleg.* 7 West<sup>2</sup>) discussed here concerns Lips and Argestes, blowing in the region of Cnidos and Rhodes.<sup>505</sup> The Lips is a roughly west-by-southwest wind; the Argestes is a roughly west-by-northwest wind. Cnidos was a city on a peninsula in southwestern Asia Minor; the island Rhodes was close by, to the southeast. Both the Lips and the Argestes would reach the Cnidos-Rhodes region after crossing the Aegean. The proverb concerns one set of opposite attributes: cloudy (or rainy) and clear (see §§ 1, 4–8).

Theophrastus discusses Lips in § 51 alone, Argestes here and in §§ 61–62 (though these latter chapters are no help in interpreting § 51). According to Aristotle, Lips is a wet wind, Argestes a dry one (*Mete.* 2.6.364b24–25). *Pr.* 26.26 asks why rain comes if Lips blows during the equinox (cf. *Sign.* 20.135). [Arist.] vs includes: “Lips: this name is from Libya, whence it blows” (973b12). Of Argestes, this work says merely that ‘Argestes’ is an alternative name for the west wind Iapyx (973b14–17). According to *On Signs*, Lips is one of the wettest winds and one of those “that most thicken and conceal the sky with clouds,” whereas Argestes is one of “the chief winds to bring clear skies,” though it is also one of those “most likely to bring cloud-winds” (36.257–265). I have more to say on the point and possible origin of this proverb in the next section.

One major textual issue in this passage concerns ms. A’s λίβας αἰσχρόν, as the latter word does not make sense in context. The correction by a second hand in ms. B of λίβας to λίβος is a helpful minor adjustment. But the major problem is αἰσχρόν, and I think two viable conjectures have been suggested: Turnebus’ ἥ χροῶνται, referring to the proverb (stating that it is used especially around Cnidos and Rhodes), or Furlanus’ ἰσχυρός, referring to Lips and Argestes (stating that they are strong especially around Cnidos and Rhodes). On the one hand, it is easier to explain the corruption of ἰσχυρός to αἰσχρόν; on the other, ἰσχυρός requires an implied verb to be (in fact Coutant inserts ὦν after ῥόδον), and the proverb is not really about the strength of these two winds. I therefore

505 Steinmetz (1964, 51) suggests that Theophrastus learned this proverb from Eudemus (of Rhodes): *Das rhodische Beispiel hat wohl Eudem, mit dem Theophrast im Briefwechsel stand, vermittelt.* (He cites Eudemus fr. 6 Wehrli, which refers to an exchange of letters between Eudemus and Theophrastus on Aristotle’s *Physics*.) Perhaps.

opt for the other reading, and print ὥσπερ τοῦ ἀργέστου καὶ λίβος, ἧ χρώνται μάλιστα κτλ. (though without much confidence). Turnebus suggests reading ὡς περί in place of ὥσπερ, which is tempting (as it makes for smoother Greek) but ultimately unnecessary.

Three other noteworthy textual issues: (1) In the opening line, ms. A has ἴθριαι, corrected to αἰθρίαι in ms. D. I print αἴθρια, as both words in the pair should be adjectives (cf. § 8, ἐπινεφῆ καὶ αἴθρια). (2) The first half of the proverb (a hexameter couplet) in ms. A reads: ταχὺ δὲ νεφέλην ταχὺ δ' αἰθρίαι ποιεῖ. But to work both metrically and grammatically, I have accepted the following emendations: μὲν (Turnebus) for δὲ, νεφέλας (Aldus) for νεφέλην, and αἴθρια (ms. z) for αἰθρίαι. (3) Ms. A has διὰ τοῦτο καὶ τῶν ἐν παροιμίᾳ λεγομένων πρὸς τινὰς τόπους εἰσὶν, which has bothered editors, who thought something was needed to go with τῶν ἐν παροιμίᾳ λεγομένων to convey *some* “of the things said” etc. So Furlanus inserted τὰ before the καὶ, whereas Wimmer replaced εἰσὶν with ἔνια. (Gigon suggested (τὰ πολλά) ἐστίν.) But although the Greek of the manuscripts is not elegant, it need not be emended. I render it: “for this reason, too, they (sc. ‘cloudy’ and ‘clear’) pertain to what is said in proverb” etc.

περὶ γὰρ τοὺς τόπους τούτους ὃ τε λίψ ἀμφοτέρα ταχέως ποιεῖ, πνέων ἀπὸ τοιαύτης ἀρχῆς, ὃ τ' ἀργέστης ταχὺ δασύνει τὸν οὐρανόν.

Theophrastus adds this one line of explanation, which is not all that helpful and requires a bit of speculation to make sense of.

I suspect the proverb originated because of the somewhat unusual behavior of Lips and Argestes in the Cnidos-Rhodes region compared to the rest of Greece,<sup>506</sup> and that this unusual behavior is explained by each wind “blowing from such a source.”<sup>507</sup> Recall the proverb: “Lips wind quickly makes clouds and quickly clear skies, while every cloud follows Argestes wind.” As I explained in the previous section, Lips is usually thought to quickly bring clouds and rain; but in the Cnidos-Rhodes region it does that *and* it quickly clears the skies. Argestes is normally considered a dry wind; but in the Cnidos-Rhodes region it is on the contrary followed by clouds. (Perhaps this is connected to the claim in *On Signs* 36 that the Argestes is one of the winds most likely to

506 Steinmetz writes: *Eine in einem Distichon formulierte, für Rhodos und Knidos geltende Wetterregel* (1964, 51). But I do not think this proverb is an application to Rhodes and Cnidos of a weather-rule, but rather refers to exceptions to what one generally observes about these winds in other areas.

507 I assume πνέων ἀπὸ τοιαύτης ἀρχῆς goes not only with the Lips, but with the Argestes as well.

bring cloud-winds.) What accounts for the difference in each case is its different source. Since the origins of these winds are the same wherever they blow, the variable factor here is that they are blowing over (all of) the Aegean. So, that the Argestes blows from the northwest and across the Aegean explains why in the Cnidos-Rhodes region it “quickly darkens the sky” (owing to the added moist vapor). And that the Lips blows from the southwest (and particularly from north Africa) and across the Aegean explains why it both produces clouds (owing to the added moist vapor) and then quickly clears the skies (owing to its heat). This is speculation, but I expect I am on the right track.

### *On Winds 52*

I consider §52 and the first part of §53 to be a unit, the subject of which is the “order of winds” (τάξις ... τῶν πνευμάτων, §52) that Theophrastus claims exists in some places: either the shifting of a wind to the next one in succession (more on what that means shortly) or the change of a wind into its opposite. Steinmetz takes §52 (and part of §53) to contain Theophrastus’ explanation of an apparent contradiction between this order or circuit of winds and his doctrine of ἀνταπόδοσις (see §§10, 26, & 53).<sup>508</sup> I agree that there is no such contradiction, and that the formulation τάχα οὐδὲ τὸ ὅλον ἄτοπον implies that some people will find his claims strange or surprising; however, I do not see the aim of this section to be the solving of a problem.<sup>509</sup>

ἐνιαχοῦ δὲ καθάπερ τάξις τίς ἐστὶ τῶν πνευμάτων, ὥστε θάτερον μετὰ θάτερον πνεῖν ἐὰν μένῃ τινὰ χρόνον. τάχα δ’ οὐδὲ τὸ ὅλον ἄτοπον τό γε τοιοῦτο, εἴπερ ἡ περίστασις αἰεὶ τῶν ἀνέμων εἰς τοὺς ἐφεξῆς (ἢ) πάλιν μεταβολὴν εἰς τοὺς ἐναντίους.

Theophrastus claims that in some places (and so not everywhere) there is *something like* an order of the winds—τάξις being qualified in this way, as there is no precise order in the blowing of the winds, or none that can be described. (As indicated before, such a lack of precision is in the nature of the subject matter.) An order of the winds involves (in some locations) one wind blowing

508 *Der für einige Orte behauptete Kreislauf des Windes steht nicht im Widerspruch zur Antapodosis-Lehre* (1964, 52).

509 For a brief but good discussion of the issues raised in §52 (and related Peripatetic texts) see Sharples (1998, 155–156).

with some regularity after another. This occurs, however, only when a particular wind endures long enough for some change to take place such that it is followed by another wind—not coincidentally, but as part of some causal sequence. I take “if (the prior wind) endures for a certain time” (ἐάν μὲν τινα χρόνον) to correspond or refer to one type of alteration described in the second half of §52: ἐκπνευσάντων τελέως (“blowing out completely”). Similarly, one wind blowing after another (θάτερον μετὰ θάτερον πνεῖν) is also elaborated on in the next passage (though not sufficiently for full comprehension). This circuit or cycle of winds takes either of two forms (which is why I think the insertion of ἦ is necessary here, as suggested by Turnebus): a shift to the next one in succession *or* a change to the opposite one. More on what these might refer to in the following passage. According to *Pr.* 26.26.942b27–28, “the circuit of the winds corresponds to the path of the sun” (ἡ τῶν πνευμάτων περίστας κατὰ τὴν τοῦ ἡλίου φορὰν γίνεται).

δύο γὰρ οὗτοι τρόποι μεταλλαγῆς ἢ περισταμένων ἢ ἐκπνευσάντων τελέως. ὧν ἡ μὲν κατὰ τὴν περίστας ἐστὶν εἰς τοὺς ἐφεξῆς, ἐγγυτάτω γὰρ αὕτη μετάβασις, ἐν ᾗ καὶ [αντ]ἀναστρέφει πολλάκις ἐπὶ τὸν αὐτὸν ὅταν ὑπὸ χειμῶνος ἀοριστία τις ᾗ· ἡ δὲ κατὰ τὴν μεταβολὴν εἰς τοὺς ἐναντίους.

The text is corrupt, but one can, I think, make out something. Theophrastus describes two basic types of alteration (μεταλλαγῆ): (1) the wind altering according to a circuit or circular motion (περίστας), which involves a shift (μετάβασις) to the next wind in succession; and (2) the wind blowing out completely, resulting in a change (μεταβολή) into the opposite wind. Theophrastus does little to clarify his account (or if he did, his clarifications have been lost or corrupted).

The greatest textual corruption occurs in the line that I translate (and set between dashes) “in which indeed there is often a turning back to the same<sup>510</sup> direction when there is a certain indeterminateness owing to a storm.” See the *apparatus criticus* for the various emendations to ms. A (which contains two non-existent words: ἀνταναστρέφει and ἀρκτιάτης). I take this line to be a qualification of the first alteration: the shift to the next wind in succession. If there is a storm, often this wind will shift back to the original direction. So for example (though Theophrastus gives none), if the shift is from a Zephyrus to a Boreas, during a storm the wind might shift back to being a Zephyrus.

510 I.e. the original direction, before the shift. (Coutant translates τὸν αὐτὸν ‘the original’.)



When Theophrastus and other Peripatetics refer to winds moving to the next wind in succession or to the opposite one, I think it most useful to imagine a windrose (which is circular), with Boreas at the top, and moving clockwise to the next wind (to the right, as we shall see) or down to the opposite wind. Something like this is supported by one passage from Aristotle's *Meteorology* and three from *Pr.* 26.<sup>511</sup> I simply quote the passages here, though they raise as many questions as they answer:

The circuits, when they (sc. winds) cease, are to the ones that follow (or 'are next') according to the course of the sun, because what follows (or 'is next to')<sup>512</sup> the source is most of all set in motion; and the source of the winds thus moves as the sun does.<sup>513</sup>

*Mete.* 2.6.364b14–17

Further, the winds turn either into their opposites or into those going to the right. Therefore, blowing after Boreas, for it is on the right, Zephyrus is well thought of, as being mild in contrast with a difficult wind.<sup>514</sup>

*Pr.* 26.31.943b28–31

Now all winds change either into their opposites or to winds on their right.<sup>515</sup> But since Boreas does (not) change into winds on the right, what would remain for it is to change into a Notos. And on the fifteenth day after the winter solstice it is in the south, because the solstice is a certain beginning, and the sun moves the air that is most of all near it, and during this solstice the sun is toward the south. Therefore, just as it rouses the

511 Though what follows lacks crystal clarity, *pace* Coutant & Eichenlaub (1975, 86) I do not see any obvious contradictions among these texts and § 52.

512 On τοὺς ἐχομένους and τὸ ἐχόμενον in the sense of "the following" or "the one(s) next to," see LSJ s.v. ἔχω IV 3: "*come next to, follow closely* ...; of peoples or places, *to be close, border on*, c. gen ....; οἱ ἐ. the *neighbouring* people .... τὰ ἐχόμενα τούτοις *what follows* ...."

513 αἱ δὲ περιστάσεις γίνονται αὐτῶν καταπαυομένων εἰς τοὺς ἐχομένους κατὰ τὴν τοῦ ἡλίου μετástασιν, διὰ τὸ κινεῖσθαι μάλιστα τὸ ἐχόμενον τῆς ἀρχῆς· ἡ δὲ ἀρχὴ οὕτω κινεῖται τῶν πνευμάτων ὥς ὁ ἥλιος.

514 ἔτι τὰ πνεύματα περίσταται ἢ εἰς τάναντία ἢ εἰς τὰ δεξιὰ. μετὰ οὖν τὸν βορέαν πνέων, ἐπὶ δεξιὰ γὰρ ὁ τόπος, εὐδοκίμει, ὥσπερ παρὰ χαλεπὸν πρῶος.

515 In my Loeb *Problems*, I noted at this point: "I.e., eastward." I now think that is mistaken. It would be eastward only for Boreas shifting to the right, if it ever did so. But according to this very passage, it never does.

Apeliotes winds when it moves the eastern regions,<sup>516</sup> so too does it rouse Notos winds when it moves the southern regions.<sup>517</sup>

*Pr.* 26.12.941b10–19

For when the Apeliotes blows, it sets in motion the winds towards the south, since its change is in that direction, but though it sets them in motion it does not mix with them. Now Zephyrus is moved by Notos winds, and when it blows it sets in motion Boreas winds; for the cycle of the winds ends there.<sup>518</sup>

*Pr.* 26.31.943b34–944a2 = *Pr.* 26.55.946b25–29

I assume that in Theophrastus as well, the “order of winds” in some region depends on where the path of the sun is during a given season of the year. (Note that one wind does not actually change into another—e.g. Zephyrus into Boreas, or Boreas into Notos—though in a particular location it might seem that way. Rather, one wind subsides and another takes over.)

One other noteworthy textual issue: Ms. A has ἡ μὲν κατὰ τὴν περίστασιν εὖρος εἰς τοὺς ἐφεξῆς: “the (alteration) according to the circuit (or ‘circular motion’) is a Eurys (i.e. an east-by-southeast wind) to the next ones in succession.” This makes little sense, and an editor seems to have two choices: to emend the text so that it more smoothly or sensibly presents Eurys as an example of the first type of alteration (in which case I would suggest inserting οἶον before εὖρος); or, to emend εὖρος so that this phrase is an elaboration on (not an example of) that type of alternation. I prefer the latter, and follow Bonaventura (1593, 205) in taking εὖρος to be a mistake for ἐστίν.<sup>519</sup> For I know of no other text in which Eurys is discussed in a similar context;<sup>520</sup> and moreover, one would expect

<sup>516</sup> Literally “of the rising (sun)”. Presumably, the sun moves *the air* in the eastern regions. The Apeliotes is the east wind, moving directly opposite to Zephyrus.

<sup>517</sup> μεταβάλλει δὲ πάντα εἰς τοὺς ἐναντίους ἢ τοὺς ἐπὶ δεξιᾷ ἀνέμους τὰ πνεύματα. ἐπεὶ δὲ βορέας εἰς τοὺς ἐπιδεξίους (οὐ) μεταβάλλει, εἴη ἂν αὐτῷ λοιπὸν εἰς νότον μεταβάλλειν. ἔστι δὲ καὶ ἡ μετὰ τὰς χειμερινὰς τροπὰς πεντεκαδεκάτη νότιος, διὰ τὸ τὰς μὲν τροπὰς ἀρχὴν τινα εἶναι, κινεῖν δὲ τὸν κατ’ αὐτὴν μάλιστα ἀέρα τὸν ἥλιον, εἶναι δὲ ἐν ταύταις ταῖς τροπαῖς πρὸς νότον. καθάπερ οὖν καὶ τὰ ἀπ’ ἀνατολῆς κινῶν ἀπηνλιώτας ἀνέμους ἡγειρεν, οὕτω καὶ τὰ ἀπὸ μεσημβρίας κινῶν νότους ἐγείρει.

<sup>518</sup> ἀπηνλιώτης μὲν γὰρ πνέων τὰ πρὸς νότον πνεύματα κινεῖ, ἐνταῦθα γὰρ ἡ μετὰστασις αὐτοῦ ἐστίν, κινῶν δὲ οὐ μίγνυται αὐτοῖς. ὁ δὲ ζέφυρος καὶ κινεῖται ὑπὸ τῶν νοτίων καὶ πνέων κινεῖ τὰ βόρεια· τελευτᾷ γὰρ ἐνταῦθα ἡ περίοδος τῶν πνευμάτων.

<sup>519</sup> Coutant attributes to himself this emendation, but Bonaventura (*Lego pro εὖρος, ἐστίν*) was first.

<sup>520</sup> In §53, Theophrastus seems to say that Eurys blows against—that is, in a direction opposite to—the wind called Idyris.

Theophrastus to give examples of both kinds of alteration. So as I understand the passage, Theophrastus says that the first manner of alteration is moving in a circle, and then he describes this further thus: “the (alteration) according to the circuit is to the next ones in succession ....”

Finally, I should single out Turnebus’ two ingenious emendations, both of which I accept: ἡ περισταμένων for εἴπερ ἰσταμένων in the opening line of this passage, and ἀοριστία τις ἢ for ὁ ἀρκτηιότης ἦν toward the end. Although they both make a lot of sense, such emendations naturally remain somewhat speculative.

### *On Winds 53*

In § 52, Theophrastus describes two kinds of changes to winds: the shifting of a wind to the next one in succession, and the change of a wind into its opposite. Surprisingly, he discusses further only the latter. In the first part of § 53, he concludes the discussion and indicates that the interaction between offshore winds and alternating winds is the kind of counter-flow of air involved in the change of a wind into its opposite. The second part of § 53 is devoted to what might be taken for such a change of wind but is in fact a certain clash of winds with a spectacular result—namely, the prester (a waterspout with lightning). This moves the discussion to another (albeit related) topic.

καὶ ὅλως οὕτω πέφυκεν ἐπὶ πάντων καὶ ἐπὶ τούτων ἡ ἀνταπόδοσις καὶ οἷον ἡ ἀντίρροια κατὰ λόγον, ὅπερ καὶ ταῖς ἀπογείαις ὑπάρχειν πρὸς τὰς τροπαίας.

I take “in all these cases” (ἐπὶ πάντων καὶ ἐπὶ τούτων)<sup>521</sup> to refer to winds that change into their opposites, which also involve a counter-flow. To say that these occur naturally stresses that their occurrence, one following the other, is neither paradoxical nor coincidental. One example of a pair of winds that can be characterized by this ‘attribute’<sup>522</sup> is offshore and alternating winds. The relationship between these two is also described as repayment (ἀνταπόδοσις) in § 26; and it is clear from §§ 26–27 that this is one kind of bending-back (ἀνάκλασις) of wind (another being the bending-back owing to a wind striking a mountain). This pair of winds is common, as offshore winds followed by alternating winds is in some places a daily occurrence.

<sup>521</sup> A sort of hendiadys, preferable I think to “in all cases and in these cases.”

<sup>522</sup> The attribute, so to speak, is one wind being ‘paid back’ by an opposite flow of air. I assume this would count as an accompanying attribute that is not a capacity: see § 1.

For the details of how offshore winds can be said to follow alternating winds according to reason, see § 26.

Re. ἡ ἀνταπόδοσις καὶ οἶον ἡ ἀντίρροια κατὰ λόγον: I consider the καὶ epexegetical and take the κατὰ λόγον with ἡ ἀντίρροια: “the repayment, that is so to speak<sup>523</sup> the proportional counter-flow” etc. One might reasonably take κατὰ λόγον with πέφυκεν (“occurs naturally ... according to reason”), though I find that rendering somewhat redundant (but see § 26).

Ms. A reads ὅπερ καὶ τὰς ἀπογαίας ὑπάρχειν. Editors have suggested changes to all of these words (see the *apparatus criticus* for details). I think think most are unnecessary, however. (The infinitive ὑπάρχειν works if one assumes an implicit πέφυκεν from earlier in the passage.) I emended τὰς ἀπογαίας to ταῖς ἀπογαίαις, as I cannot make much sense of the former, and as I believe what was intended here was the common Peripatetic use of ὑπάρχειν plus dative to refer to what belongs to something (as an attribute) or is true for something. (Gigon it turns out had the same idea.)

αὕτη δὲ πολλαχού καθάπερ ἐφήμερός ἐστι τάξις τῆς μεταβολῆς. ἐνιαχοῦ δ' οὐ τροπαία τὸ ἀντιπνέον ἀλλ' ἕτερόν τι πνεῦμα πελάγιον, ὥσπερ καὶ περὶ τὸν Παμφυλικὸν κόλπον. ἔωθεν μὲν γὰρ (ὁ Ἰ)δυρίς καλούμενος ἀπὸ τοῦ ποταμοῦ τοῦ ἰδύρου πνεῖ μέγας καὶ πολὺς, ἐπιπνεῖ δὲ αὐτῷ νότος καὶ εὖρος.

What follows is not another example of a wind that changes into its opposite or winds which have the previously mentioned reciprocal relationship (involving a counter-flow).<sup>524</sup> Rather, I think Theophrastus is again stressing the necessity in the study of winds to be cognizant of coincidence (see § 31). In this case, however, the coincidence is a purported blowing back (τὸ ἀντιπνέον) which is not an actual blowing back, but the regular simultaneous blowing of the so-called Idyris (from the north) and Notos or Eurus (from the south and the east-by-southeast respectively).

It sounds like Theophrastus is saying that these winds blow against each other at the same time (more on this shortly), in which case it would be surprising that anyone would take these as one wind changing into its opposite, or specifically as an offshore wind being followed by alternating wind. But I think it likely that at any given moment, one of the two is mastering the other, so that it appears that one is replacing the other or that one is an

523 The οἶον might be explained by the fact that ἡ ἀντίρροια is *hapax legomenon*. Note that in *Metaph.* 10b1–7, Theophrastus uses ἀνάρροιαι to refer to the reflux or counter-flow of the sea.

524 Cf. Steinmetz (1964, 52).

alternating wind. Note that in *Mete.* 2.6, Aristotle says that opposite winds cannot blow at the same time (364a27–29).<sup>525</sup> Coutant & Eichenlaub (1975, 87) claim Theophrastus is contradicting Aristotle here, and that is probably correct.<sup>526</sup> Now one could argue that Aristotle and Theophrastus agree that opposite winds can blow against each, but that during the period in which this happens, at any given moment one has mastery over the other, and this is Aristotle's point. The remainder of § 53 and all of § 54, however, count against this, as the discussion there implies that at least some of the time, the opposite winds (e.g. Idyris and Notos) are actually clashing and not alternating mastery.

Re. ὁ Ἰδυρίς: Turnebus has properly corrected ms. A's incomplete δύρις.<sup>527</sup> [Arist.] vs, under the heading Βορρᾶς, writes: "And in Olbia along Magydos in Pamphylia it (sc. Boreas) is called Idyris, for it blows from the island called Idyris"<sup>528</sup> (973a5–7). Though quite different paleographically, at some point there must have been a confusion in this text such that ποταμοῦ mistakenly became νήσου. There is no such island off the shore of Pamphylia (the region of southern Asia Minor between Lycia and Cilicia). Moreover, if there were, any wind blowing from it would not be a northerly wind. The river Idyris or Idyros was in western Pamphylia (as was a small city of the same name).

ὅταν δ' ἀντικόψωσιν ἀλλήλοις, κύματός τε μέγεθος αἴρεται, συνωθουμένης τῆς θαλάττης, καὶ πρηστήρες πολλοὶ πίπτουσιν, ὅφ' ὧν καὶ τὰ πλοῖα ἀπόλλυνται.

Theophrastus takes this opportunity to mention an unusual effect (dangerous to humans) of these winds clashing together: the *prester*, which is a waterspout with lightning.<sup>529</sup> And perhaps he also mentions this phenomenon as evidence (contra Aristotle) that opposite winds do sometimes blow against each other at the same time.

In the account of the causes of wind in the extant epitome of Theophrastus' *Metarsiology*, more space is devoted to the *prester* than to anything else, with the exception of his general account of wind. It is worth quoting in full:

525 οὗτω δὲ τεταγμένων τῶν ἀνέμων, δῆλον ὅτι ἅμα πνεῖν τοὺς μὲν ἐναντίους οὐχ οἷον τε (κατὰ διάμετρον γάρ· ἄτερος οὖν παύσεται ἀποβιασθεῖς) ....

526 Cf. Alex. Aph. in *Mete.* 2.6.364b14–17 (CAG 3.2 p. 112.26–34) = 187 FHS&G. And see Sharples (1998, 155–156) and Coutant & Eichenlaub (1975, 86–87).

527 Gigon writes in his apparatus "om. Ἰδυρίς?"

528 ἐν δὲ Ὀλβίᾳ τῇ κατὰ Μάγυδον τῆς Παμφυλίας Ἰδυρεὺς πνεῖ γὰρ ἀπὸ νήσου ἣ καλεῖται Ἰδυρίς.

529 Cf. LSJ s.v. πρηστήρ: "hurricane or waterspout attended with lightning."

We (may now) give a report about the *Prester*<sup>530</sup> and say: It is similar to any airy pillar which is stretched out from the heaven to the sea and draws the ships upwards. When it goes down to the earth, it is called a “hurricane”. It occurs either when a hollow cloud sets itself up forcing the wind and stretches to the sea, the wind is pulled because of (the cloud);<sup>531</sup> or (it occurs) through a wind which rushes off violently. This hurricane draws the water and the ships upwards, because when the wind collides (against the water), it bounces back with force and by doing so it raises the air. Thus, when the air ascends, the water and the ships go up with it so that no vacuum is left. This hurricane drives back without destroying the ships which it causes to ascend, when the wind does not cease suddenly, but gradually becomes weak. The ships are destroyed (however) by (the wind), whenever it suddenly ceases for whatever reason and when the ships because of the (failing) wind suddenly and violently fall down.

13.43–54

Aristotle, in his *Meteorology*, offered an explanation of the etymology of πρηστήρ: “When (the wind) that is drawn down catches fire—and this happens when the wind is rarer—it is called a *prester*; for it burns out the air and colors it with flame”<sup>532</sup> (3.1.371a15–17). Although Theophrastus does not mention the fire or lightning element of the prester in either § 53 or in his *Metarsiology* (as it survives), he was aware of it. In the opening section of *On Fire*, having stated that most fire is generated “with force, as it were,” he gives as an example the concentration and compression (and so friction) of air in clouds, which forcibly produce “*presters* and lightning bolts.”<sup>533</sup>

Re. κύματος ... μέγεθος αἵρεται: literally “greatness of wave arises,” though I translate it “great waves arise.” The singular κύματος here has a collective sense; cf. Archilochus fr. 212 West: ἴσθη κατ’ ἡκην κύματός τε κἀνέμου (where “wave and wind” surely means not “a wave and a wind” but “waves and wind”).<sup>534</sup>

530 I assume this does not render an actual Arabic word but is merely a transliteration of the Greek. Daiber, however, does not have a note or comment about this.

531 The syntax of this portion of the sentence seems off to me; but I have presented it exactly as found in Daiber.

532 ὅταν δὲ κατασπώμενον ἐκπυρωθῇ, τοῦτο δ’ ἐστὶν ἐὰν λεπτότερον τὸ πνεῦμα γένηται, καλεῖται πρηστήρ· συνεκπίμπρησι γὰρ τὸν ἀέρα τῇ πυρώσει χρωματίζων. According to LSJ (s.v. πρηστήρ) it comes from the verb πρήθω (‘burn’), according to BAGD (s.v.) from πίμπρημι (which can mean ‘inflamm’).

533 ἔτι δὲ αἱ γενέσεις αὐτοῦ αἱ πλείσται καὶ οἷον μετὰ βίας .... ἐκ δ’ αὐτοῦ τοῦ ἀέρος καὶ τοῖς νέφεσι συστροφῆι καὶ θλίψεϊς· βίαιοι γὰρ δὴ αἱ φοραί, δι’ ὧν δὴ οἱ πρηστήρες καὶ κεραυνοὶ γίνονται.

534 I am grateful to David Sider for this example from Archilochus.

*On Winds* 54

Theophrastus has not merely gone off on a tangent in § 53, when he discusses clashing winds that produce the prester. Rather, he has moved to a new topic: the collisions of winds generally.<sup>535</sup>

τὸ γὰρ ὅλον ὅπου τοιαύτη σύγκρουσις γίνεται τῶν ἀνέμων, καὶ κυμάτων μέγεθος αἴρεται καὶ χειμῶν γίνεται πολὺς, ὥσπερ ὅταν ἀντιπνεόντων ἀλλήλοις μάχεσθαι φῶσι τοὺς ἀνέμους. ἐπεὶ κάκεινο κατὰ λόγον ἐστίν, ὅταν ἐπιπέσωσιν ἀλλήλοις μήπω τελέως ἐκπεπνευκόσι τὸν χειμῶνα ποιεῖν· οἷον γὰρ ὕλην παρέθηκε θάτερος θατέρω.

This passage is straightforward, and I think presents no interpretive problems: Theophrastus is moving from one special case of opposite winds clashing—namely, the Idyris blowing against Notos or Eurys, producing a prester—to the general observation that when winds blow against each other (neither dying out when they reach each other), the result is a storm (as well as great waves, when this occurs over water). For not only is there the powerful result, in the sky, of the winds clashing, producing a tumultuous movement of air; by combining their material (ὕλην)—not just air, but water (liquid or frozen)—the clash of the two winds produces a great deal of precipitation. And a storm simply is powerful winds with precipitation.

Re. κυμάτων μέγεθος αἴρεται: Cf. κύματος ... μέγεθος αἴρεται in § 53, with commentary. It is a bit unusual, but not problematic, that Theophrastus used a different formulation in each case. Still, I think it possible that a scribe erroneously copied this from the similar formulation a couple of lines before, and that the original had, not καὶ κυμάτων μέγεθος αἴρεται καὶ χειμῶν γίνεται πολὺς, but merely καὶ χειμῶν γίνεται πολὺς. What Theophrastus is discussing is the generation of a storm.

Re. μάχεσθαι φῶσι τοὺς ἀνέμους, people “say the winds are fighting”: Theophrastus is explaining another popular *endoxon*.

535 Note that Wimmer departs from Schneider here and begins § 54 four lines later (between θάτερος θατέρω and μάλλον δέ).

μᾶλλον δὲ τοῦτ' ἐμφανὲς ἐπὶ τοῦ βορέου· χειμεριώτερος γὰρ οὗτος καὶ εὐθὺ τὴν προσερχεῖσιν (ἔ)πηξεν. ὡσαύτως δὲ καὶ ὁ νότος ἐξύγρηνεν καὶ ὑδατώδη ἐποίησεν. ἐνιαχοῦ δὲ καὶ τοὺς νιφετοὺς δοκεῖ ποιεῖν, ὥσπερ καὶ περὶ τὸν Πόντον καὶ τὸν Ἑλλήσποντον, ὅταν ὁ βορέας οὕτω γένηται ψυχρὸς ὥστε πῆξας κατέχειν· οὐ μὴν ἀλλὰ γε τὸ πλεῖον διέπηξεν ἢ εἰς ὕδωρ διέλυσεν.

Once again, Boreas and Notos are the paradigm cases. The point Theophrastus is making is more obvious (μᾶλλον ... ἐμφανὲς) in the case of their clashing, as they are powerful winds, known to everyone, that blow with a great deal of regularity. And as Notos (by the time it meets Boreas) comes with considerable moisture, when they clash there is a storm—and a snowstorm, in those cases when the cold Boreas freezes the moisture from Notos.

Perhaps Theophrastus mentions the region “around the Pontus and the Hellespont,”<sup>536</sup> as one might not expect snowstorms there, given the temperature of the region, though in fact they are not uncommon.<sup>537</sup> Theophrastus would claim that this supports the view that Boreas freezes the moisture carried by Notos.

Re. εὐθὺ τὴν προσερχεῖσιν ἔπηξεν, “straightaway freezes the (material) that was added”: I accept (as do other editors) the suggestion of Turnebus—ἔπηξεν for ms. A's πῆξιν—as a verb is needed. Although I agree with Bonaventura (1593, 213) that we should take τὴν προσερχεῖσιν to be referring to ὕλην from the previous line, there is no need to insert the word into the text (as Furlanus suggests, and Wimmer and Coutant do).

Re. ms. B's γὰρ (following χειμεριώτερος): I mention, merely as a curiosity (and perhaps as an indication of the dependence of ms. D on ms. A), the state of the manuscripts here. In ms. A, the text is unclear: there is a tau followed by two (now) unidentifiable letters, the word most likely being τις (the reading of ms. M). Ms. D, however, has τ᾿ written above the final sigma in the preceding word (χειμεριώτερος). Now τ᾿ is not a standard abbreviation used in ms. D; so perhaps ms. A was illegible here even in the 15th century. In any case, neither τις nor any other word beginning with tau seems to be correct, whereas γὰρ makes perfect sense.

Turnebus' διέτηξεν (LSJ s.v. διατήκω, *melt, soften by heat*) for ms. A's διέπηξεν (‘freeze hard or thoroughly’) is completely off. Coutant prints διέτηξεν but translates it ‘freezes’.

536 That is, from the strait now called the Dardanelles, east along northern Asia Minor on the coast of the Black Sea.

537 A quick survey of climate in this area in modern times, from Istanbul to Trabzon, confirms that snowfall in the winter months is not uncommon (which is not to say the actual cause is Boreas).



*On Winds* 55

Apart from the opening line, which is transitional between what was previously discussed and what follows, § 55 is devoted to an issue apparently of some interest to the Peripatetics, namely, the idea that the weather (including wind) is indeterminate and disorderly during the rising and setting of the constellation Orion.<sup>538</sup> Like much of *On Winds*, the text here is in poor shape. Fortunately in this case, Alexander of Aphrodisias, in his commentary on a relevant section of Aristotle's *Meteorology*,<sup>539</sup> quotes most of the Theophrastean material on the constellation Orion, which helps with emending the text and filling the lacuna.

καὶ αὐταὶ μὲν οἶον χειμεριναὶ τινες ἐπίπνοιαὶ καὶ ἀντικόψεις.

This line acts as a conclusion to both the previously mentioned clashing of Boreas and Notos which produces snowstorms, and more broadly to the entire discussion of the order of winds and the clashing of winds (which, this line suggests, Theophrastus regarded as connected topics). And the line also acts (again via a μὲν—δέ construction) as a transition to the next topic.

⟨αἱ⟩ δ' ἐπ' Ὠριῶνος ἀνατολῇ καὶ δύσει τῶν πνευμάτων ἀκρισίαι συμβαίνουσιν ὅτι ἐν ταῖς μεταβολαῖς αἰεὶ πάντα μάλιστα πέφυκεν ἀοριστεῖν.

This line lays out the phenomenon to be discussed briefly in the remainder of § 55. Aristotle had mentioned it briefly as well, in his *Meteorology*, describing the two reasons why climate is thought or seems to be (εἶναι δοκεῖ) irregular and difficult during the rising and the setting of Orion:

The Orion is thought to be confused and difficult, both setting and rising, because the setting and the rising occur during a change of season, summer or winter, and because of the size of the star (i.e. constellation) it comes over many days; and changes of all things are disturbing owing to indeterminateness.<sup>540</sup>

2.5.361b30–35

538 Coutant & Eichenlaub (1975, 88): "Orion rises in early July and sets in mid-November."

539 *in Mete.* 2.5.361b30–35 (CAG 3.2 p. 97.10–17). The passage begins: Θεόφραστος δὲ ἐν τῷ Περὶ ἀνέμων περὶ τούτων οὕτως λέγει·

540 ἄκριτος δὲ καὶ χαλεπὸς ὁ Ὠρίων εἶναι δοκεῖ, καὶ δύνων καὶ ἐπιτέλλων, διὰ τὸ ἐν μεταβολῇ ὥρας συμβαίνειν τὴν δύσιν καὶ τὴν ἀνατολήν, θερούς ἢ χειμῶνος, καὶ διὰ τὸ μέγεθος τοῦ ἄστρου ἡμερῶν γίγνεται πλῆθος· αἱ δὲ μεταβολαὶ πάντων ταραχώδεις διὰ τὴν ἀοριστίαν εἰσὶν.

In *Pr.* 26.13, this issue is presented as a problem to be solved, focusing on wind. It begins: “Why do the days and variabilities of the winds become especially changeable at the time of Orion? Is it because during a time of change everything is always especially indeterminate?”<sup>541</sup> Both Theophrastus in §55 and the author of *Pr.* 26.13 (the two texts are clearly related) attempt to explain the phenomenon with reference to the change of seasons and not (explicitly at least) to the size of Orion.

This line is among the passages quoted by Alexander, and his text is (as becomes clear in the next section) superior to that of ms. A:

Ms. A: ἤδη ἐπ’ Ὀριῶνος ἀνατολῇ καὶ δύσει τῶν πνευμάτων ἀκρασίαι συμβαίνουσιν οὗτ’ ἐνίαις μεταβολαῖς αἰεὶ πάντα μάλιστα πέφυκεν ἀοριστεῖν.

Alex.: δ’ ἐπ’ Ὀριῶνος ἀνατολῇ καὶ δύσει τῶν πνευμάτων ἀκρισίαι συμβαίνουσιν ὅτι ἐν ταῖς μεταβολαῖς αἰεὶ πάντα πέφυκεν ἀοριστεῖν.

With one exception, the reading in Alexander—δ’ (emended to αἰ δ’) for ἤδη, ἀκρισίαι for ἀκρασίαι, ὅτι ἐν ταῖς for οὗτ’ ἐνίαις—is better. The one exception: I have retained μάλιστα, which Alexander omits, as I think it more likely that Alexander or the text he relies on (inadvertently) omitted it than that someone else added it.

Note that Alexander’s ἀκρισίαι (‘confusions’), ms. A’s ἀκρασίαι (‘bad mixtures’), and *Pr.* 26.13’s ἀκαιρίαι (‘variabilities’ or ‘unseasonableness’) all fit the context, more or less, and are all similar paleographically. But ἀκρισίαι works best, and gets further support from the opening word of the Orion-passage in Aristotle’s *Meteorology* (ἄκριτος), and from the appearance of ἄκριτα a couple of lines later in ms. A.

ὁ δ’ Ὀρίων ἀνατέλλει μὲν ἐν ἀρχῇ ὁπώρας, δύνει δ’ ἐν ἀρχῇ χειμῶνος, ὥστε διὰ τὸ μῆπω καθεστάναι μηδὲ μίαν ὥραν, τῆς μὲν γινομένης τῆς δὲ παυομένης, ἀνάγκη καὶ τὰ πνεύματα ἀκατάστατα καὶ ἄκριτα εἶναι, διὰ τὸ (ἐπαμφοτε)ρίζειν (τὰ ἐξ ἐκατέρας), ὅθεν δὴ (καὶ) χαλεπὸς λέγεται καὶ δύνων καὶ ἀνατέλλων εἶναι, διὰ τὴν ἀοριστείαν τῆς ὥρας. ἀνάγκη γὰρ ταραχώδη καὶ ἀνωμαλὴ εἶναι.

Though the text here is corrupt and lacunose, it can be repaired (more on that shortly) and its meaning is fairly straightforward. Theophrastus is elaborating on Aristotle’s Orion-passage (in *Mete.* 2.5) by connecting the indeterminateness

541 Διὰ τί ἐπὶ Ὀρίωνι γίνονται αἰόλοι μάλιστα αἱ ἡμέραι καὶ ἀκαιρίαι τῶν πνευμάτων; ἢ ὅτι ἐν μεταβολῇ αἰεὶ πάντα ἀοριστεῖ μάλιστα;

of change to the change of season (both mentioned by Aristotle), but adding a statement about how the latter explains the former: during the change of season, a single season has not yet been established, and so the climate (including the winds) will not have a set nature, but will be confused (ἄκριτα, literally ‘undecided’) and in fact mixed (i.e. sharing the different properties of each season). And not only does indeterminateness lead to disorder and irregularity, it also causes the climate during these periods to be (said to be) difficult—I assume for anyone (e.g. sailors, farmers) whose livelihood depends in part on knowing what to expect from the weather.

In the previous section I quoted the opening of *Pr.* 26.13. Here I present the remainder, as it is clearly a paraphrase (and in places a quotation) of the § 55 passage:

Now Orion rises at the beginning of late-summer and sets in winter, so that because one season has not yet settled—but one is coming to be while the other is ending—for this reason the winds too must be unsettled, because they share the properties of each. And indeed, Orion is said to be difficult both rising and setting, because of the indeterminateness of the season. For they must necessarily be disorderly and irregular.<sup>542</sup>

The main textual issue in this part of § 55 concerns the repair of a mangled set of words, which can be easily done by relying once again on the quotation in Alexander’s commentary on Aristotle’s Orion-passage. (*Pr.* 26.13 serves as confirmation.) Here is a comparison of the relevant words in ms. A, Alexander, and *Pr.* 26.13. The one lacuna in ms. A is indicated; the spaces do not reflect anything in these texts, but were introduced to make the similarities and differences more noticeable here.

Ms. A:	δια	ταρίζειν(lac. 5 litt.)	οἷακα αὐτόθι δὴ	χαλεπὸν γίνεται
Alex.:	διὰ τὸ ἐπαμφοτερίζειν	τὰ ἐξ ἑκατέρας ὕθην	δὴ καὶ χαλεπὸς λέγεται	
<i>Pr.</i> 26.13:	διὰ τὸ ἐπαμφοτερίζειν	τὰ ἐξ ἑκατέρας	καὶ χαλεπὸς δὴ λέγεται	

Something has gone seriously wrong in ms. A. In emending the text, I have accepted the reading of Alexander.

542 ὁ δ' Ὠρίων ἀνατέλλει μὲν ἐν ἀρχῇ ὁπώρας δύνει δὲ χειμῶνος, ὥστε διὰ τὸ μήπω καθεστάναι μίαν ὥραν, ἀλλὰ τὴν μὲν γίνεσθαι τὴν δὲ παύεσθαι, διὰ ταῦτα ἀνάγκη καὶ τὰ πνεύματα ἀκατάστατα εἶναι διὰ τὸ ἐπαμφοτερίζειν τὰ ἐξ ἑκατέρας. καὶ χαλεπὸς δὴ λέγεται καὶ δύνων καὶ ἀνατέλλων ὁ Ὠρίων διὰ τὴν ἀοριστίαν τῆς ὥρας. ἀνάγκη γάρ ταραχώδη εἶναι καὶ ἀνώμαλον.

Re. ἀνάγκη γὰρ ταραχώδη καὶ ἀνωμαλὴ εἶναι: ταραχώδη and ἀνωμαλὴ are both either masculine singular (in which case they refer to Orion, which is how Wood takes them) or neuter plural (in which case they refer to πνεύματα, which is how Coutant & Eichenlaub take them). I think the latter is correct: what is disorderly and irregular is not so much Orion, but the winds that blow during the rising and setting of Orion. Recall that at the outset of *On Winds*, Theophrastus says irregularity is an attribute of some winds (ἀνωμαλεις, §1).

Re. μῆδὲ μίαν: This is, as far as I can tell, the reading of ms. A. Ms. D, however, clearly has μῆ δὲ μίαν, as do the other mss. Wimmer prints μῆδεμίαν (and Gigon does not correct him), and he is followed by Coutant (who mistakenly reports it as the reading of the manuscripts). Schneider prints [μῆδὲ] μίαν, following *Pr.* 26.13.

### *On Winds* 56

Theophrastus' introduction to this treatise (§1) ends by noting that his inquiries also "concern those issues in which animals and plants are included as well." He may have been alluding (in part) to §§56–58. The focus in these chapters is on the effects of various winds on human life—directly, in the case of winds affecting our bodies (e.g. by causing fever), and indirectly through their effect on plants and inanimate objects.<sup>543</sup>

After an opening transitional sentence, §56 illustrates the positive and negative effects of Boreas and Notos winds on how we feel and particularly on our ability to exert ourselves.

In §56, my reliance on Turnebus is even greater than usual. (See the *apparatus criticus* for details.) Note, however, that many of his suggestions seem to be based on the parallel text in *Pr.* 26.42 (though he does not refer to it in the margins of Vascosanus).

[ἦ] ταῦτα μὲν οὖν καὶ ὅσα ἄλλα τοιαῦτα περὶ τὸν ἀέρα καὶ τὸν ὅλον οὐρανὸν συμβαίνει, τὰδε (δέ τινα) εἰς τὰς ἡμετέρας διαθέσεις.

543 Cf. Steinmetz (1964, 52), who takes §§56–59 as a unit, the subject of which he labels *Wirkung der Winde auf die ζῶα, die Pflanzen und die ἄψυχα*. (In my view, §59 does not belong with §§56–58.)

Theophrastus employs a μέν οὖν—δέ construction as a transition. Despite the corruption of the text, the sense is pretty clear: The assorted facts and issues related to winds discussed in §§ 46–55 concerned phenomena occurring in “the air and the sky (or ‘heavens’)”; the next set of assorted facts and issues to be discussed specifically concern the effect of winds on humans. The destruction of ships is mentioned in § 53; but it may be understood that weather is nearly always related to sailing and ships, and that the move now is to humans and their condition and work on the ground, so to speak.

In ms. A, the present line reads:

ἢ ταῦτα μέν οὖν καὶ ὅσα· ἀλλὰ τοιαῦτα περὶ τὸν ἀέρα καὶ τὸν ὅλον οὐρανὸν·  
συμβαίνει τάδε· (*lac. 6 litt.*) εἰς τὰς ἡμετέρας διαθέσεις·

I follow Turnebus in deleting the ἢ at the opening of this passage, rather than replacing it with a καί as suggested by Furlanus (and followed by Wimmer and Coutant).<sup>544</sup> Bonaventura (1593, 215) was the first in a long line of scholars to prefer τὰ δέ over τάδε (without comment), but I prefer the manuscript reading. I have however moved the punctuation from before to after συμβαίνει, so that συμβαίνει governs the first clause too (a change first implemented by Schneider). Editors have made two suggestions (that I know of) regarding the lacuna: Turnebus simply fills it with δέ (a word which, following τάδε, could easily have been lost owing to scribal error), and I assume he held that συμβαίνει governed this clause as well. Bonaventura (1593, 215) suggests ἀναχθήσεται, which occurs again in § 58. Its meaning there is something like ‘will be reduced to’ or ‘will be brought back to’; Coutant accepted the suggestion and translated the clause “Other phenomena are related to our state of being.” In the end, however, I print a suggestion from Brill’s anonymous reviewer—(δέ τινα)—which works quite well and fits the lacuna perfectly: “These things, then, and all other such phenomena occur throughout the air and the sky as a whole, (*and some such things*) as the following affect our conditions.”

Re. περὶ τὸν ἀέρα καὶ τὸν ὅλον οὐρανόν: Recall (from § 1) καὶ ὅλως ᾧ συμβαίνει περὶ τὸν οὐρανὸν ἢ περὶ τὸν ἀέρα καὶ τὴν γῆν καὶ τὴν θάλατταν διὰ τὴν πνοήν. And see the relevant commentary, pp. 93–94.

544 In Peripatetic authors ταῦτα μέν οὖν appears often at the opening of a sentence, whereas καὶ ταῦτα μέν οὖν occurs nowhere in Greek literature.

οἶον (βαρύ)τερον ἐν τοῖς νοτίοις ἔχουσιν οἱ ἄνθρωποι καὶ ἀδυνατώτερον· αἴτιον δ' ὅτι ἐξ (ὀλίγου) πολὺ ὑγρὸν γίνεται καὶ [ἡ] ὑγρότης βαρεῖα ἀντὶ κούφου πνεύματος.

The first issue involves the negative effect of Notos on the human body. The present passage states what Notos does—makes “people feel heavier and more powerless”—and one reason for it: the additional moisture it brings (which is more than one would expect from what seems to be a light wind). I think this is a clear reference to additional humidity, which (as anyone from the east coast of the United States can attest) is experienced as heavy or oppressive. Coutant & Eichenlaub comment: “The increase in warmth and humidity brought about by the south wind in the Aegean is a common event. These humid siroccos are called ‘Garbi’ winds in the Aegean” (1975, 88).

The first half of *Pr.* 1.24 (862a27–30) presents this same material as a problem to be solved.<sup>545</sup> It is worth quoting, because it is helpful in emending our flawed text, and because it includes something that either was originally in our text and dropped out, or was added by the author of *Pr.* 1.24 (or *Pr.* 26.42) as a contribution to this discussion: “Why do people feel heavier and more powerless in Notos winds? Is it because out of a small (amount) comes a lot of moisture, being melted by the warmth, and heavy moisture comes out of light wind?”<sup>546</sup> What is additional is the reference to the warmth (from Notos or its origin in the south) melting the moisture (referring to evaporation).

Turnebus emends this brief passage in six places, in each case relying on the text of *Pr.* 1.24 (or *Pr.* 26.42). See the *apparatus criticus* for details. I’ll comment on one of his suggestions. In ms. A, there is a lacuna of about nine letters following δ' ὅτι ἐξ. Turnebus fills it with ὀλίγου (cf. ἡ ὅτι ἐξ ὀλίγου in *Pr.* 1.24). I think another possibility, and a better fit with the length of the lacuna, is τοῦ ὀλίγου (though this requires changing ἐξ to ἐκ). In any case, the text remains somewhat unclear in both §56 and *Pr.* 1.24. I suspect Theophrastus is saying that a great deal of moisture (in the sense of humidity) comes out of the small amount of moisture (perhaps the relatively small amount of water that is evaporated); and in the same way, heavy moisture (i.e. oppressive humidity) comes out of what is, or is felt to be as, a slight wind.

Re. οἱ ἄνθρωποι: One of Turnebus’ emendations requires further comment. Here, ms. A has ἀνών, which is almost certainly an abbreviation (*nomen sacrum*) for (τῶν) ἀνθρώπων. (Gigon clearly took it that way.) Turnebus, however,

545 The first half of *Pr.* 1.24 is virtually identical to the whole of *Pr.* 26.42. The second half of *Pr.* 1.24 has some connection to the next section of §56, and to part of §58 as well.

546 Διὰ τί ἐν τοῖς νοτίοις βαρύτερον ἔχουσι καὶ ἀδυνατώτερον οἱ ἄνθρωποι; ἡ ὅτι ἐξ ὀλίγου πολὺ ὑγρὸν γίνεται διατηκόμενον διὰ τὴν ἀλέαν, καὶ ἐκ πνεύματος κούφου ὑγρὸν βαρὺ;

replaces ἀνών with οἱ ἄνθρωποι, which is necessary for sense and is found in the parallel texts in *Pr.* 1.24 and 26.42. The *nomen sacrum* ἄνοι for (οἱ) ἄνθρωποι likely appears in ms. A in § 59.428. It is worth mentioning here that οὐρανόν (in the sense of ‘sky’) appears five times in *On Winds* (in §§ 39, 51, 56, 61, 62), and in two cases (§§ 51, 61) ms. A has the *nomen sacrum* οὐνόν (with a line over -νό-).<sup>547</sup>

ἔτι δ' ἡ μὲν ἰσχὺς καὶ δύναμις ἐν τοῖς ἄρθροις (ἐσ)τί, ἥξειτα μέντι κινεῖται. λίαν δ' ὑγρὰ κωλύεται συντείνεσθαι· τὰ δὲ βόρεια ποιεῖ τινὰ συμμετρίαν, ὥστε καὶ ἰσχύειν καὶ συντείνεσθαι μάλλον.

Theophrastus gives a further reason why Notos makes people feel heavier and more powerless: our strength lies in our joints, and the additional moisture from Notos somehow affects our joints in such a way that we are prevented from exerting ourselves—I assume not completely, but as we would under normal conditions or especially when Boreas is blowing. Boreas winds “produce a certain (sc. balanced) proportion” because they are a cold wind, and the cold mixes with the ambient warmth (in Greece), generating the ideal conditions under which to exert oneself.

Unfortunately, I must say “somehow affects our joints,” because Theophrastus’ explanation for how the additional moisture negatively affects our joints is likely now missing from the treatise (at that point where I have obelized the text). It is quite possible, however, that his explanation is to be found in the second half of *Pr.* 1.24 (in the italicized portion):

Further, our power is in our joints, *and these are made slack by Notos winds. Now the noises of things glued together makes this clear. For the sticky material in the joints, having been solidified, prevents us from moving, but if it is too moist (it prevents us) from exerting ourselves.*<sup>548</sup>

862a30–33

However tempting it is, I have not followed Furlanus, Schneider, Wimmer, and Coutant (cf. Gigon) in inserting a portion of this passage into our text. For it is at least possible that what *Pr.* 1.24 contains is an alternative explanation to the one originally given by Theophrastus.

547 See van Groningen (1967, 45).

548 ἔτι δ' ἡ δύναμις ἡμῶν ἐν τοῖς ἄρθροις ἐστί, ταῦτα δ' ἀνίεται ὑπὸ τῶν νοτίων. δηλοῦσι δ' οἱ ψόφοι τῶν κεκολλημένων. τὸ γὰρ γλίσχρον ἐν τοῖς ἄρθροις πεπηγὸς μὲν κινεῖσθαι κωλύει ἡμᾶς, ὑγρὸν δὲ λίαν δὲ συντείνεσθαι.

I again accept a number of Turnebus' suggestions, two of them clearly based on *Pr.* 1.24: ἄρθροις ἐστί for ms. A's ἀθρόοις τι, and κωλύεται συντείνεσθαι for κειμένη συντίθεσθαι.

### *On Winds* 57

§ 57 discusses another way in which Notos negatively affects humans: by causing fevers.

καὶ παλὶν ξηροὶ καὶ μὴ ὑδατώδεις ὄντες οἱ νότοι πυρετώδεις· ὑγρότητα γὰρ ἐνιάσι τοῖς σώμασι θερμὴν ἀλλοτρίαν ἅτε θερμοὶ φύσει καὶ ὑγροὶ ὄντες. ἡ δὲ τοιαύτη διάθεσις πυρετώδης, ὃ γὰρ πυρετὸς ἐξ ἀμφοῖν τούτοις ὑπερβολῆς ἐστίν· ὅταν (δ') ὑδάτινοι πνέωσι τὸ ὕδωρ καταψύχει τὴν ἔξιν.

Normally, Notos is rainy for those in the north, and so in Greece (§ 4); later, Theophrastus says this wind “saturates” (§ 54). But when Notos is dry, in the sense of not being rainy—it is still moist—it causes fever. For it implants in human bodies an excessive amount of hot moisture, and—without the cooling effect of rain—this hot moisture is fever-producing. (See *Pr.* 1.1.) In § 56, Theophrastus discussed a problem with Notos bringing excess humidity; I assume he is discussing the same kind of wind here (which explains the initial καὶ παλὶν).

Theophrastus does not say what causes Notos to be dry (in the sense described). But the author of *Pr.* 26.50, a chapter clearly related to § 57, briefly indicates an explanation:

Why are Notos winds that are dry and not rainy fever-producing? Is it because they produce extraneous moisture and heat in the body? For they are moist and hot by nature, and this is fever-producing; for fever is due to an excess of both of these. Therefore, when these blow due to the sun without rain, this is the result, but when they come with rain, the rain cools us.<sup>549</sup>

549 Διὰ τί οἱ νότοι οἱ ξηροὶ καὶ μὴ ὑδατώδεις πυρετώδεις; ἢ ὅτι ὑγρότητα καὶ θερμὴν ἀλλοτρίαν ἐμποιοῦσι τοῖς σώμασιν; εἰσὶ γὰρ ὑγροὶ καὶ θερμοὶ φύσει, τοῦτο δ' ἐστὶ πυρετώδες· ὃ γὰρ πυρετὸς ὑπ' ἀμφοτέρων τούτων ἐστὶν ὑπερβολῆς. ὅταν μὲν οὖν ὑπὸ τοῦ ἡλίου ἀνευ ὕδατος πνέωσι, ταύτην τὴν τάξιν, ὅταν δὲ ἅμα τῷ ὕδατι, τὸ ὕδωρ καταψύχει. *Pr.* 1.23 is virtually identical to *Pr.* 26.50, with a few significant differences. For one, it goes on for another sentence, discussing the beneficial effects of Notos on plants (see below, pp. 336–338). More relevant here, where *Pr.*



Whether this reference to the sun was originally in Theophrastus, or was the speculation of the author of *Pr.* 26.50 (trying to fill in a gap in *On Winds*), I cannot say. In any case, the cause would seem to be an intense heat in the south (more intense than usual) that generates moisture through evaporation (which is picked up by Notos), but that also prevents the formation of clouds.

Re. ξηροὶ καὶ μὴ ὑδατώδεις: I take the καὶ to be epexegetical, so that the phrase means “dry and so not full of rain” or “dry, i.e. not full of rain.” To say that Notos is dry is emphatically not to say it lacks moisture, but rather that it does not bring clouds and cause rain.

The line that has most troubled editors reads as follows in ms. A: ὑγρότητα γὰρ ἔνιοις τοῖς σώμασι θερμὴν ἀλλοτρίαν ἔστε θερμοὶ φύσει καὶ ὑγροὶ ὄντες. The problems are ἔνιοις and ἔστε. Some editors have thought to emend ἔνιοις to ἐνιάσι (Schneider) or ἐνήσι (Turnebus), meaning ‘implant’ (cf. *Pr.* 26.50, ἐμποιοῦσι and *Pr.* 1.23, ποιοῦσιν). I follow Schneider here, as the winds are plural and ἐνιάσι is a bit closer paleographically to ἔνιοις. Others have (also) plausibly emended or bracketed ἔστε (Turnebus changed it to ἄτε, Coutant bracketed it). This is something of a coin-toss, but I have a slight preference for emending the word over deleting it. The resulting meaning is: “for *inasmuch as* they are hot and moist by nature, they *implant* in our bodies an extraneous, hot moisture.” That is, the heat and moisture in Notos become, in the human body, an extraneous or foreign hot moisture (which is fever-producing). Wimmer and Gigon have taken a slightly different approach, arriving at a similar meaning: replacing ms. A’s ἔνιοις with ἐν, and ἔστε with ἐμποιοῦσι (Wimmer) or ποιοῦσι (Gigon).

τὸν αὐτὸν δὲ τρόπον καὶ ὅσα ἄλλα τῶν σωμάτων περὶ ταύτας (τάς) ἔξεις καθ’ ἐκάτερον συμβαίνει γένεσθαι. πλείω γάρ ἐστι τοιαῦτα καὶ ἐν πλείοσιν ὧν ἀπάντων αἱ αὐταὶ καὶ παραπλήσιαί τινες αἰτίαι.

I take Theophrastus to be here concluding that whatever might happen to our bodies as far as *these* conditions or states are concerned (see below on ταύτας <τάς> ἔξεις)—that is, whatever might cause us to be sluggish or not, or feverish or not—will involve good or bad proportions of hot and cold, and moist and dry. He leaves unstated whether he is referring to Notos alone, or to winds

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26.50 has ὅταν μὲν οὖν ὑπὸ τοῦ ἡλίου ἄνευ ὑδατος πνέωσι, ταύτην τὴν τάξιν, *Pr.* 1.23 reads ὅταν μὲν οὖν ἄνευ ὑδατος πνέωσι, ταύτην ἐν ἡμῖν ποιοῦσι τὴν διάθεσιν: (1) it lacks ὑπὸ τοῦ ἡλίου, and (2) ταύτην ἐν ἡμῖν ποιοῦσι τὴν διάθεσιν makes more sense in context than ταύτην τὴν τάξιν. (I render τάξιν “result”—which I believe the sentence calls for—though “order(ing)” or “position” is its normal meaning. But as indicated, there may be a problem with the text.)

generally; but I suspect it is the latter, given the reference to Boreas in §56.<sup>550</sup> Finally, although I think Theophrastus is here referring specifically to moisture and temperature, he makes it quite clear in the very next line (at the opening of §58) that other pairs of opposite attributes, and the processes which bring them about (e.g. density and solidification), also affect our physical condition.

So it seems that in every case where the winds do have an effect (positive or negative) on the health of the body, the cause is the same, in this sense: the balanced proportion of moist and dry, and hot and cold, etc. promotes a healthy condition; the lack of proportion (i.e. some kind of excess), whether of moist or dry, or of hot or cold, etc. causes distress, discomfort, disease.

Re. ταύτας <τάς> ἑξεις: In place of ms. A's ταῦτα ἐξῆς (which does not make sense in context), Schneider prints τὰς ἑξεις (which was accepted by Wimmer and Coutant). I believe, however, that the original was more likely to have been ταύτας τὰς ἑξεις: this better explains the ταῦτα in ms. A, τὰς likely having been omitted owing to haplography.<sup>551</sup> Gigon proposed transposing τῶν σωμάτων to after τὰς ἑξεις, which makes for smoother Greek but is in fact unnecessary.

Re. γένεσθαι: This is the clear reading of the manuscripts, though the Aldine (and every edition since) prints γίνεσθαι.

### *On Winds 58*

§58 discusses the effect of winds on human life, not directly but through their effect on plants and inanimate things. About half of §58 is devoted to ironworking.

καὶ τῶν καρπῶν δὴ καὶ τῶν ἄλλων τῶν τοιούτων ὁμοίως· ἅπαντα γὰρ εἰς τὴν ὑγρότητα καὶ διάλυσιν καὶ τὴν πυκνότητα καὶ σύστασιν καὶ ὅσα ἄλλα τῆς συστοιχίας ἐκατέρας ἀναχθήσεται.

The brevity of the ‘discussion’ of wind and crops may be related to the fact that the effect of winds on plants is discussed elsewhere: §§13, 14, 38, 43, 45, 58, and (outside of this work) *CP* 5.12.4–11 (a lengthy account of the negative effect of cold winds on trees). Note also: (1) The second half of *Pr.* 1.23 claims that “Notos winds from the sea are also beneficial to plants”; however, they

550 It is worth noting the Hippocratic tradition of seeing a connection between winds (not just Notos) and health. See e.g. *Aër* 4–6 & 10, *Morb.Sacr.* 13, *Epid.* 7.105.

551 Cf. Arist. *HA* 8(9).1.608b8, *Metaph.* A.3.983b15, *EE* 1.8.1218b14.

(or other winds?) cause mildew or blight in plants when there is “extraneous moisture and heat”<sup>552</sup> (862a23–26). See also *Pr.* 26.17, which is similar. (2) *Pr.* 20.9 says that gourds and cucumbers do better when buried, because wind and sun hinder their growth.

I render the opening of this section “And so it surely is for crops and other such things ....” I take Theophrastus to be saying that what he just said about wind and human health applies to the influence of winds on plants as well: they have a positive or negative effect depending on whether they create or contribute to a proper proportion or disproportion of the moist and dry, hot and cold, etc.

The interpretation of this passage depends on a proper understanding of the last word, ἀναχθήσεται, the future indicative passive of ἀνάγω, which can mean *lead* or *rise up*, or *bring back* or *reduce* (and so even *refer*) (see LSJ s.v.).<sup>553</sup> In our case it clearly has this last sense, and I prefer ‘reduce’ to ‘refer’ (though these come to the same thing).<sup>554</sup> Aristotle uses the term (as well as a cognate noun) in a similar sort of passage in *Metaph.* κ.3:

And since for every being there is a reference/reduction (ἡ ἀναγωγὴ) to something single and common, each of the opposites will also be referred/reduced (ἀναχθήσεται) to the primary differentiae and opposites of being, whether the primary differentiae of being are plurality and unity, and similarity and dissimilarity, or some others ....<sup>555</sup>

1061a10–15

So I take it Theophrastus is saying that, as in the case for instance of Notos causing fever, the explanation of the influence of winds on plants will be reduced to an account of the relevant opposites—moist and dry, hot and cold, dense and rare—and, he seems to add here, of the processes that give rise to a particular temperature, amount of moisture, degree of density, etc. The examples he gives, of one of a pair of opposite attributes and the process by

552 οἱ δ' ἐκ θαλάττης νότοι καὶ συμφέρουσι τοῖς φυτοῖς· ἐψυγμένοι γὰρ ἀπὸ τῆς θαλάττης ἀφικνοῦνται πρὸς αὐτά. αἱ δ' ἐρυσίβαι γίνονται ὑπὸ ὑγρότητος καὶ θερμῆς ἀλλοτρίας.

553 Cf. *BDAG* s.v. ἀνάγω [D]: “to bring back, retrieve, report, relate.”

554 Cf. Wood, “for all the effects which they exhibit are *to be referred to* either moisture ....,” and Coutant, “For all bodies *can be classified as to* moisture ....”

555 ἐπεὶ δὲ παντὸς τοῦ ὄντος πρὸς ἓν τι καὶ κοινὸν ἡ ἀναγωγὴ γίγνεται, καὶ τῶν ἐναντιώσεων ἐκάστη πρὸς τὰς πρώτας διαφορὰς καὶ ἐναντιώσεις ἀναχθήσεται τοῦ ὄντος, εἴτε πλῆθος καὶ ἓν εἴθ' ὁμοιότης καὶ ἀνομοιότης αἱ πρώται τοῦ ὄντος εἰσὶ διαφοραὶ, εἴτ' ἄλλαι τινές ....

which a wind brings it about, are “moisture and dissolution, and density<sup>556</sup> and solidification.” But he makes it clear that these do not exhaust the relevant pairs of opposite differentiae: ὅσα ἄλλα τῆς συστοιχίας ἐκατέρως,<sup>557</sup> “however many other (pairs) there are from either side of the column.” On the column of opposites, so to speak, see §§1–2. On συστοιχία as ‘column’ (especially in Aristotle), the entry in LSJ is instructive:

συστοιχ-ία, ἡ, *column* or *series* of things or ideas, Arist. *APr.* 66b27, *Metaph.* 1004b27, 1066a15, 1072a31, *Thphr.* *CP* 6.5.6; ἐκ τῶν σ. ὅσαι μὴ ἐπαλλάττουσιν ἀλλήλαις from *series* which are mutually exclusive, Arist. *APo.* 79b7; ἐν τῇ αὐτῇ σ. τῆς κατηγορίας in the same *line* of predication, Id. *Metaph.* 1054b35, 1058a13; esp. in Pythag. philosophy, *pair of co-ordinate* or *parallel columns*, αἱ ἀρχαὶ αἱ κατὰ συστοιχίαν λεγόμεναι in *a series of co-ordinate pairs*, as *odd* and *even*, *one* and *many*, *right* and *left*, ib. 986a23; also, *either of such parallel columns*, ib. 1093b12, *PA* 670b21, *EN* 1096b6, al., *Thphr.* *Vent.* 58, *Gal.* 18(2).167.

Re. σύστασιν (‘solidification’): Note LSJ s.v. σύστασις III 3: “of bodies, *density* or *consistency*, πυκνότης καὶ σ., opp. ὑγρότης καὶ διάχυσις.”

One noteworthy textual issue: Regarding moisture and the process that produces it, ms. A reads τὴν ὑγρότητα καὶ διάλυσιν (‘dissolution’). Schneider prints a plausible alternative (different by one letter), which one ought to take seriously: διάχυσιν (‘diffusion’). This alternative, accepted by Wimmer and Coutant, may well be right. According to Aristotle, διάχυσις is the opposite of πήξις (‘freezing’ or ‘solidification’): see *Mete.* 4.5.382a29–31 (ὥστε καὶ πήξεως καὶ διαχύσεως, καὶ τοῦ ξηραίνεσθαι καὶ τοῦ ὑγραίνεσθαι). As διάλυσιν and διάχυσιν pretty much mean the same thing in the present context, I retain the reading in ms. A.

καὶ ἐπὶ τῶν ἀψύχων δ’ ὡσαύτως, οἷον αἱ τε ῥηγνύμεναι χορδαὶ καὶ οἱ ψόφοι τῶν κεκολλημένων καὶ ὅσα ἄλλα συμβαίνει διυγραινόμενων καὶ ἀνιεμένων. περὶ (δέ) τὴν τοῦ σιδήρου κατεργασίαν (*lac. 4 litt.*).

Again, Theophrastus is saying that, as in the case of winds affecting the health of humans and the condition of crops, so too the explanation of the influence

556 Gigon believes πυκνότης is a mistake, and ought to be changed to ξηρότητα. That’s not a bad idea, but not compelling enough to warrant tampering with the text.

557 Cf. ὅσα ἄλλα τῶν σωμάτων κτλ. in §57.

of winds on certain inanimate things can be reduced to (i.e. explained in terms of) an account of the relevant opposites—moist and dry, hot and cold, dense and rare—and whatever processes give rise to them (the two mentioned here being moistening and loosening).

The three examples given are the breaking of gut strings (in musical instruments), the noises of glued objects (perhaps the creaking from the joints of older furniture), and a special case: the ease or difficulty in working with iron (to which the remainder of §58 is devoted). All of these are the result of the level of humidity caused by certain winds, and the resulting degree (or lack) of loosening. And ὅσα ἄλλα κτλ. makes clear that these are merely examples.

In the second example, I assume that Theophrastus has in mind the expansion of wood owing to increased heat and humidity (in parts of furniture, or in doors and their lintels and thresholds) brought about or contributed to by Notos winds. In this connection, note *Sign.* 30: “And if while there are Notos winds there is a noise from glued objects, this signifies a change to Boreas winds.”<sup>558</sup>

After καὶ ἀνιεμένων, ms. A reads περὶ τὴν τοῦ σιδήρου κατεργασίαν (followed by a lacuna of four letters). Some sort of transition is missing between the clause or sentence ending ἀνιεμένων, and what follows. Schneider suggests inserting an οἶον before περὶ, Furlanus a καί. Of the two, I prefer οἶον. But I have my doubts about Theophrastus offering just one more example, after saying καὶ ὅσα ἄλλα συμβαίνει διυγραينوμένων καὶ ἀνιεμένων. So I suggest instead putting a period after ἀνιεμένων, and inserting a δέ after περὶ. But this works only if one takes seriously the lacuna following κατεργασίαν, which no one has done since the scribe of ms. D ignored it. On my interpretation, after giving the examples (“for instance the breaking of gut strings and the noises of glued objects and whatever else happens when objects are moistened and loosened”), Theophrastus singles out iron working as a special or different case: “(But) concerning the manufacturing of iron ....” What is missing is some word or words (a length of four letters may not be accurate) indicating that ‘moistening and loosening’ (from humidity and heat) are *beneficial* with a view to working with iron. (In the case of gut strings and noise from glued objects, the effects are destructive and slightly irritating, respectively.) This is explained in what follows.

<sup>558</sup> ἐὰν δὲ νοτίων ὄντων ψοφῇ τῶν κεκολλημένων εἰς τὰ βόρεια σημαίνει τὴν μεταβολὴν (208–209). The noises of glued objects are mentioned in *Pr.* 1.24 as well (quoted and discussed above, in connection with §56, p. 332).

πλείω γάρ φασιν ἐξελαύνειν τοῖς νοτίοις ἢ βορείοις. αἴτιον δ' ὅτι τὰ μὲν βόρεια ξηραίνει καὶ σκληρύνει, τὰ δὲ νότια ἀνυγραίνει καὶ διαχεῖ· πᾶν δὲ ἀργότερον διακεχυμένον ἢ ὑπεσκληρυμένον. ἅμα δὲ καὶ μᾶλλον ἰσχύουσι καὶ συντονωτέρως τοῖς βορείοις.

The claim is that when Notos winds are blowing, increasing the humidity, the iron becomes more pliable and thus easier to work with. At the same time, however, metal workers are more sluggish when Notos winds are blowing, and have more power with Boreas winds (as discussed in § 56). Perhaps the best condition for iron-working is when neither of these winds is exerting much of an influence.

After saying that Boreas dries and hardens, we expect Theophrastus to write that Notos moistens and softens. But instead of any word meaning 'soften,' ms. A has διανθεῖ (which is not a word). Turnebus suggests either διαλύει ('dissolve') or διαίνει ('moisten' or 'make wet'). Bonaventura too recommends the latter (1593, 217), though I find ἀνυγραίνει καὶ διαίνει redundant. I originally went with διαλύει, but Gigon has recently convinced me (with a reference to *CP* 2.6.1<sup>559</sup>) that διαχεῖ ('disperse' or 'relax') is correct. This was in fact the word printed by Furlanus. In the present context, it means 'make spreadable' (i.e. 'pliable' or 'malleable'), though I use 'relax' in my translation.

Note that ἀργότερον normally means 'lazy' but here must mean 'easier to work'.

In the last sentence, I think it necessary to accept Turnebus' slight emendation of ἰσχοῦσι to ἰσχύουσι (cf. ἰσχύειν in § 56). Still, the sentence is missing a subject and arguably one verb: "But at the same time too, (they?) are stronger and (?) more intensely in Boreas winds." Schneider (1821, lvii) suggests adding ἔχουσι after συντονωτέρως ('are more intense'), which would take the same subject as ἰσχύουσι. This interpretation is accepted by Coutant, who translates the line "But at the same time the workers are stronger and more vigorous when the north winds blow." (Cf. Wood, who inserts, in brackets, 'the smiths'.) Though Schneider may well be right, I leave the rest of the text alone, taking there to be an implied subject and verb: "But at the same time too, (smiths) are stronger and (work) more intensely in Boreas winds."<sup>560</sup>

559 "The hot (sc. winds) relax and moisten, and so weaken, the innate heat" of the plant (τὰ θερμὰ διαχεῖ καὶ ἀνυγραίνει καὶ ἀσθενὲς ποιεῖ τὸ σύμφυτον θερμόν). It is clear in context that Theophrastus is referring to Notos winds.

560 Wimmer (1866, 388) leaves the subject unstated in his translation: *Adde quod valentiores etiam multoque vegetiores aquiloniis diebus sunt.*

*On Winds 59*

I take the penultimate section of this treatise (as I divide it, §§ 59–61) to raise or list difficult issues requiring further inquiry.<sup>561</sup> § 59 provides an introduction to this new topic, including a transition from what precedes it (and in particular the assorted topics in §§ 46–58). The actual topics are the content of §§ 60–61, though one is mentioned (as an example) in § 59.

ἀπλῶς δὲ τὰ μὲν τοιαῦτα σχεδὸν ἐμφανεῖς ἔχει τὰς αἰτίας, οἷον ἀπὸ μιᾶς ἀρχῆς ἀνάλογον ἔχοντα τὸ ἐφεξῆς.

This passage is the first half of another transition between discussions marked by a μὲν—δέ construction. Theophrastus begins with a general statement that he is careful to qualify, hence ἀπλῶς and σχεδόν: In general, the explanations of the phenomena he has just discussed are fairly obvious (especially in comparison to what will follow). I think he is almost certainly referring to the assorted phenomena discussed in §§ 46–58, and not to everything he has said so far, because there is much that he recognizes is uncertain or not obvious in §§ 1–45. In fact, as we have seen, one of the perplexing issues he raises in § 61 (the claim that Notos does not blow vigorous in Egypt for a certain distance) has been discussed in § 8.

Re. οἷον ἀπὸ μιᾶς ἀρχῆς ἀνάλογον ἔχοντα τὸ ἐφεξῆς: As an example of the sort of phenomenon that has an obvious cause, he mentions those that have a consequence that follows logically from a single principle.<sup>562</sup> Theophrastus does not further illustrate what he means, but I suppose he has in mind (for instance): Notos blowing at the time of the Dog-star due to heat in the south, which generates a lot of vapor (§ 48); or, the confusion of winds at the rising and setting of Orion, due to the changes in the seasons (§ 55). Note that I translate ἀνάλογον ‘logically’, in line with earlier translators (cf. *ratione* [Wimmer], ‘rationally’ [Wood], ‘logical’ [Coutant]); but one could also render this with something like ‘in due course’ or ‘by analogy’ (cf. *proportione* [Furlanus, and Turnebus apud Schneider 1818, 2]). Though perhaps more natural, ‘by analogy’ cannot be right,

561 Cf. Steinmetz (1964, 52): *Den Schluß unseres Textes bilden einige Nachträge (§ 60–62), von denen einer, wie wir gesehen haben, schon von Theophrast in das Manuskript eingearbeitet worden ist. Von besonderem Interesse ist die (unvollständige oder verstümmelte) Liste von Lokalnamen verschiedener Winde.* I agree that § 62 is of special interest (as well as being mutilated and incomplete); but I regard it as a new section, separate from § 60–61.

562 The μιᾶς (in ἀπὸ μιᾶς ἀρχῆς) is missing from Wimmer (1866) and thus from the version in the *TLG*. This is simply a mistake, as is clear from Wimmer’s translation (*ab uno principio*).

as Theophrastus is making a general point about (most of) the phenomena discussed so far; but few of these involve explanations by analogy (see, however, § 33, which makes use of an analogy with air moving through a house).

ἐκεῖνο δ' ἐν ἀπορίᾳ καὶ ζητήσῃ μάλλον γίνεται καθ' ἑκάτερον ὄν, οἷον εἰ μὴ σκληρότης μὴδὲ ξηρότης μὴδὲ πυκνότης τοῖς βορείοις, ἀλλὰ τὰ ἐναντία, καὶ τοῦ νότου δ' ὡσαύτως.

The aforementioned assorted phenomena with fairly obvious explanations are now contrasted with perplexing or aporetic ones—though Theophrastus seems straightaway to contrast the obvious ones with a single example of a perplexing case. For I assume the καθ' ἑκάτερον ὄν (“pertaining to each wind”) refers to Boreas and Notos in the example that follows. This example (whether genuine or merely heuristic) plays off of an issue fresh in the readers mind: In § 58, Theophrastus explains the causes of the influence of wind on iron-working in these terms: “the reason is that Boreas winds dry and harden, whereas Notos winds moisten and dissolve.” In the present passage, however, I take him to be raising the following puzzle: what is the explanation, if in some circumstance Boreas and Notos did not have these effects, but the opposite ones. Thus: “if neither hardness nor dryness nor density come with Boreas winds, but the opposites, and similarly too for Notos” (i.e. if moistness and softness do not come with Notos winds, but dryness and hardness).

I accept the marginal correction by a second hand in ms. B, changing ms. A's ἡ ἀπορία to ἐν ἀπορίᾳ. I could not make sense of the nominative in this context, and the dative seemed required (especially in parallel with ζητήσῃ). In three cases I was tempted to emend the reading of ms. A: (1) bracketing ὄν (as Turnebus suggests); (2) inserting ἐπὶ before τοῦ νότου (another suggestion of Turnebus); and, (3) bracketing δ' (which Wimmer omits). Each of these emendations makes the text a bit smoother, but in the end is not necessary.

τὸ γὰρ παράλογον αἰτίαν ἐπιζητεῖ[ν], τὸ δ' εὐλογον καὶ ἄνευ αἰτίας συγχωροῦσιν δὲ καὶ οἱ ἄνθρωποι· δεινοὶ γὰρ προσθεῖναι τὸ ἐλλιπές.

Clearly, Theophrastus does not mean that what is (apparently) contrary to reason *alone* demands an explanation. For the point of *On Winds* is to explain the causes of the attributes of the various winds, and why they are in fact ‘according to reason’. I think the reference to people accepting what is reasonable even without an explanation implies that he has in mind here what gives rise to *endoxa* that especially cry out for explanation. People in their day-to-day lives are not as likely to wonder about the regular and seasonal blowing of Boreas.



Nor are they likely to question the effects of such blowing (e.g. why Boreas cools the ambient temperature); “for they are clever enough to supply what is missing” (e.g. Boreas cools because it comes from the north). But what strikes them as counter-intuitive (e.g. why cold winds produce dryness more quickly than sunshine does, § 60) demands an explanation and merits comment. (Note λέγε-ται in § 60 and φασι in § 61.)

I suspect that what follows in §§ 60–61 represents a list (perhaps regularly emended) of work-in-progress issues as well as issues requiring further inquiry, though in each case there is a brief indication (perhaps tentative) of the nature of the explanation. (I would speculate that many of the chapters in *Pr.* 26 with no apparent connection to *On Winds* might have originated here.) As I indicated earlier, one of the issues or puzzles raised in § 61 (the claim that Notos does not blow vigorous in Egypt for a certain distance) is discussed in § 8. Perhaps this list was so tentative—and *On Winds* so unpolished—that Theophrastus (or a later editor in the Lyceum) never got around to removing this item from this section of the treatise. (I discuss this possibility in connection with § 8; see above p. 149.)

Re. δὲ καὶ οἱ ἄνθρωποι: In ms. A, one can make out δὲ καὶ, but what follows is illegible for about the space of four letters (owing to the binding problem), and this is followed by what appears to be a superlinear τοι at the end of the line. Ms. D reads δὲ καὶ αὐτοί. I take this αὐτοί in ms. D (which may well have been in ms. A) to be a mistake for or corruption of ἄνθρωποι, a common abbreviation (*nomen sacrum*) for (οἱ) ἄνθρωποι.<sup>563</sup> (This may have been the reasoning behind the change of αὐτοί to ἄνθρωποι by Anon.) See the relevant commentary on § 56 (pp. 332–333). Alternatively, one could accept the reading of ms. D, and translate the clause “And they (i.e. people generally) in fact agree to this themselves ....” This is awkward, but not impossible.

### *On Winds* 60

§ 60 includes two of the counter-intuitive and perplexing issues introduced in § 59: (1) why cold winds produce dryness more quickly than sunshine does; and (2) why people say “Fear not a cloud from the mainland in winter as much as from the open sea, but in summer from the dark mainland”? Both of these are discussed in *Pr.* 26 (in chapters 28 and 57 respectively).

<sup>563</sup> I take the οἱ, which seems necessary here, to be implied in the abbreviation ἄνθρωποι. Wimmer alternatively replaces the καὶ with οἱ.

Ms. A is often illegible in this section, and even when it is not it appears to be quite corrupt (perhaps reflecting increased deterioration at the end of this treatise). As usual, ms. D helps a great deal with the illegible parts (especially in the first half), and (more tentatively) *Pr.* 26.57 aids in restoring the text of the second half of the chapter.

ὅτι δὲ ψυχροὶ ὄντες οἱ ἄνεμοι ξηραίνουσι καὶ θάττον <ῆ> ὁ ἥλιος θερμὸς ὦν καὶ μάλιστα οἱ ψυχρότατοι ταύτην ὑποληπτέον τὴν αἰτίαν· ὅτι ἀτμίδα ποιοῦσι καὶ ταύτην ἀπάγουσι καὶ οἱ ψυχρότεροι μᾶλλον, ὁ δ' ἥλιος καταλείπει.

The puzzling phenomenon to be solved is straightforward enough: why cold winds produce dryness more quickly than the sun does<sup>564</sup>—and the colder the wind, the quicker it does this. (I will assume this is an actual phenomenon; offhand I do not know.)<sup>565</sup> The immediate cause of dryness from cold winds is given: they produce vapor, which rises off of what is moist, thus drying it. What is lacking, thus making the passage unclear, is any indication as to *how* cold winds produce vapor.<sup>566</sup>

Side-stepping this problem, we can next ask: As cold winds and the sun both produce vapor (which involves or produces drying), why do cold winds produce dryness more quickly than the sun does? Theophrastus' terse explanation is: winds carry off the vapor, whereas the sun leaves it behind. I assume this lingering moisture or humidity slows down or prolongs the drying process.

*Pr.* 26.28 is worth quoting here:

Why do winds, which are cold, produce dryness? Is it because the colder ones cause evaporation? But why do they do so more than the sun? Is it because they carry off the vapor, whereas the sun leaves it behind? Therefore it produces more moisture and less drying.<sup>567</sup>

564 ξηραίνουσι can be translated 'dry' or 'dry up', but no object is provided; hence, 'produce dryness'. I assume the meaning is: Why do cold winds dry wet grass, damp earth, wet clothes on the line, etc. more quickly than the sun does?

565 Cf. § 58: "Boreas winds dry ... whereas Notos winds moisten."

566 According to *Pr.* 25.18, there is more evaporation with Boreas than with Notos, while the latter attracts more clouds.

567 Διὰ τί οἱ ἄνεμοι ξηραίνουσι ψυχροὶ ὄντες; ἢ διότι ἀτμίζειν ποιοῦσιν οἱ ψυχρότεροι; διὰ τί δὲ μᾶλλον ἢ ὁ ἥλιος; ἢ διότι ἀπάγουσι τὴν ἀτμίδα, ὁ δὲ ἥλιος καταλείπει; ὑγραίνει μὲν οὖν μᾶλλον, ξηραίνει δὲ ἥττον.

This reduces some of the difficulty in our passage, for it makes clear (which our passage does not) that relevant here is the fact that the sun produces more vapor than cold winds do (and, we should expect, much more); and this greater amount of moisture causes it to produce less drying.<sup>568</sup>

διὰ τί (δὲ) ποτε λέγεται· «μή ποτ' ἀπ' ἡπείρου δείσης νέφος ὡς ἀπὸ πόντου χειμῶνος, θέρεος δὲ ἀπ' ἡπείροιο μελαίνης»;

The next issue even comes in the form of a Peripatetic *problema*: 98% of the more than 900 chapters in the Aristotelian *Problems* begin διὰ τί,<sup>569</sup> and of these, 26 begin διὰ τί ποτε (which conveys 'why ever' or even 'why in the world'). Perhaps this discussion was inserted from a Peripatetic collection of problems, or had been prepared for extraction from this section of *On Winds* to be placed in such a work.<sup>570</sup> In fact, this proverb (in hexameter) is the subject of *Pr.* 26.57, which begins: "Why is it said: 'Fear not a cloud from the mainland in winter but from the open sea, and in summer from the dark mainland'?"<sup>571</sup>

I assume the warning in this proverb is directed at sailors (though perhaps it was useful to farmers as well). The meaning of the compressed last clause is: Fear not a cloud from the open sea in summer, but from the dark mainland (i.e., a mainland dark with clouds). The explanation is provided in the remainder of § 60, which is virtually identical to the remainder of *Pr.* 26.57 (see the following section).

There is one difference between these two quotations of the proverb: ὡς ἀπὸ πόντου ('as much as from the open sea') versus ἀλλ' ἀπὸ πόντου ('but from the open sea'). Forster (1921, 168) suggests emending the version in § 60 to read ἀλλ', but I find that unnecessary. There may have been variations in the proverb (ὡς

568 Gigon recommends adding (from *Pr.* 26.28) the following to the end of our passage (i.e. after καταλείπει): ὑγραίνει μὲν οὖν μάλλον, ξηραίνει δὲ ἥττον. (See the previous note.)

569 Mayhew (2011, 1: xiii): "To be precise, according to my edition of the text, there are 903 chapters, 98% of which begin with διὰ τί. A dozen chapters open with a different kind of question (e.g., *Pr.* 2.21 begins: 'Should one induce sweating more in the summer than in the winter?'), four chapters seem to open with a statement, not a question (e.g., *Pr.* 1.55 begins: 'In fevers one should provide drink often and in small quantities'), and seven chapters seem to be missing their opening line(s)."

570 This would explain why there is lacking some word (like δέ) to mark a transition between the former issue and this one. Bonaventura (1593, 218) recommends replacing ποτε with δέ, whereas I think it's better to insert δέ before ποτε.

571 Διὰ τί λέγεται «μή ποτ' ἀπ' ἡπείρου δείσης νέφος ἀλλ' ἀπὸ πόντου χειμῶνος, θέρεος δ' ἀπ' ἡπείροιο μελαίνης»; This proverb is also discussed in *Pr.* 25.7, though it is not the subject of that problem.

and ἀλλ' are metrically equivalent); or if not, the version in *Pr.* 26.57 could be the corrupt one. Best to leave both versions alone.

Re. θέρεος δὲ ἀπ' ἡπείροιο μελαίνης, the last part of the proverb: Ms. A has δ' ἀπ'; but as David Sider pointed out to me, to scan this must be emended to δὲ ἀπ' or (less likely) δ' ἀπό—in either case, it is (as he described it to me) “a sign of unsophisticated verse making.” (Furlanus was first to print δὲ ἀπ'.)

ἢ διότι τοῦ μὲν χειμῶνος ἢ θάλαττα θερμότερα, ὥσ(τ') εἴ τι (συνέστη, δῆλον ὅτι ἀπ' ἀρχῆς) συνέστηκεν ἰσχυράς; ἐλύθη γὰρ ἂν τῷ ἀέρι διὰ τὸ ἀλγεῖνόν εἶναι τὸν τόπον. τοῦ δὲ θέρους ἢ μὲν θάλαττα ψυχρά καὶ τὰ πόντια πνεύματα, ἢ δὲ γῆ θερμή, ὥσ(τ') εἴ τι ἀπὸ τῆς γῆς (φέρεται, διὰ μείζονος ἀρχῆς) συνέστη· διελύθη γὰρ ἂν, εἰ ἀσθενὲς ἦν.

This passage explains the proverb (and indicates that Theophrastus believes it is accurate). Why in winter should clouds from the open sea be feared but not those from mainland? Because any cloud that could come from such a hot source without being dissolved or dispersed will be a powerful one (and I assume that means a stormy one). But in winter the mainland is not a hot source of wind. And why in summer should clouds from the mainland be feared but not those from the open sea? For the same reasons, *mutatis mutandis*.<sup>572</sup>

Re. τοῦ μὲν χειμῶνος ἢ θάλαττα θερμότερα ..., τοῦ δὲ θέρους ἢ μὲν θάλαττα ψυχρά, “in winter the sea is hotter ..., in summer the sea is cold”: Recall § 43, which says that the sea “is hot in winter, but cold in summer.” As I point out in the commentary on § 43 (see pp. 286–287), what Theophrastus means is that in winter the sea is warmer than the ambient temperature of the air, in summer it is cooler. I assume that that is what he has in mind in the present case as well.

As I said earlier, the remainder of § 60 is virtually identical to the remainder of *Pr.* 26.57 (or perhaps it would be more accurate to say it *was originally* identical to the remainder of *Pr.* 26.57). Here is the rest of *Pr.* 26.57 (i.e. aside from its opening question, quoted in the previous section):

ἢ διότι τοῦ μὲν χειμῶνος ἢ θάλαττα θερμότερα, ὥσ(τ') εἴ τι συνέστη, δῆλον ὅτι ἀπ' ἀρχῆς ἰσχυράς συνέστηκεν; ἐλύθη γὰρ ἂν διὰ τὸ ἀλγεῖνόν εἶναι τὸν τόπον. τοῦ δὲ θέρους ἢ μὲν θάλαττα ψυχρά καὶ τὰ πόντια πνεύματα, ἢ δὲ γῆ θερμή, ὥσ(τ') εἴ τι ἀπὸ τῆς γῆς φέρεται, διὰ μείζονος ἀρχῆς συνέστη· διελύθη γὰρ ἂν, εἰ ἀσθενὲς ἦν.

572 Coutant & Eichenlaub comment (1975, 88): “The proverb alludes to the differential seasonal capacities of land vis-à-vis water bodies in inducing convective cloud development.”

Going as far back as Turnebus and Bonaventura, it has been recognized that *Pr.* 26.57 could (and should) be used to improve this part of § 60. I have accepted four such emendations of ms. A (ὥστ' εἴ τι for ὡς ἐπεὶ, τοῦ δὲ for τοῦτε, εἴ τι for δὴ, and εἰ ἀσθενὲς ἦν for εἰς ἀσθενείαν<sup>573</sup>), as well as two (relatively lengthy) additions (συνέστη δῆλον ὅτι ἀπ' ἀρχῆς and φέρεται διὰ μείζονος ἀρχῆς). See the *apparatus criticus* for details.

### *On Winds 61*

§ 61 continues the presentation of perplexing issues requiring further inquiry, introduced in § 59. There are four of them. But § 61 is somewhat different from § 60 in that the issues in § 61 are merely listed or sketched, without any further development. Further, they all concern *endoxa*, and in particular things that 'some people say'. But to see this, I believe it is necessary to insert τινές φασι (from a parallel passage in § 8) in the first line, in connection with the first issue *and* to read an implied τινές φασι in the text describing the three issues that follow. This would explain the accusative<sup>574</sup> plus infinitive construction in each of these descriptions: δασύνειν δὲ τὸν οὐρανὸν μάλιστα βορέαν καὶ ἀργέστην, "(they say) that Boreas and Argestes most make the sky cloudy"; τὸ ... ἔωθεν ἐπινέφειν καὶ δασύνειν, "(they say) that the morning (breezes) bring clouds and so make (the sky) cloudy"; and, νότον δὲ καὶ εὐρον ... ἄρχεσθαι, "(they say) that Notos and Eurus ... begin etc. ...."<sup>575</sup> It is not clear to me whether in each case the claim being made is counter-intuitive, and the difficulty is explaining its paradoxical nature, or whether it is the task of Theophrastus (and/or his colleagues) merely to sort out the truth or falsehood of the claim. (Of course it could be both, as it is in the first issue.)

τὸ δὲ μὴ πνεῖν νότου λαμπροῦ ἐν Αἰγύπτῳ (ὡς τινές φασι) μηδ' ἡμέρας δρόμον ἀπέχοντα καὶ νυκτὸς ψεύδος.

This issue is raised, *and* discussed at some length, in § 8. See the relevant commentary (pp. 148–152), which includes my speculations about why it appears in both §§ 8 & 61.

573 Coutant attributes ἀσθενὲς to Schneider, though it was first suggested by Turnebus. (Hein-sius went with ἀσθενήs.)

574 In the second case, the accusative is the result of emending the text, as described below.

575 Cf. Furlanus (1605, 107) and Wood (1894, 51–52).

I have revised this line in two places, based on the text of § 8: (1) inserting ὥς τινές φασι after Αἰγύπτῳ (my own idea, as indicated above); and, (2) replacing ἀπέχοντι with ἀπέχοντα (Bonaventura). I have not followed earlier editors (Turnebus the first) in replacing νότου λαμπροῦ with νότον λαμπρόν.

δασύνειν δέ τὸν οὐρανὸν μάλιστα βορέαν καὶ ἀργέστην, τὸν δὲ νότον παραφέρειν.

It is not entirely clear what the puzzle is, or what Theophrastus intended to say about it. I suspect his view would be that this claim is false as a generalization, as the capacity of each of these winds to fill the sky with clouds or to clear them away is very much dependent on location (and distance from location of origin). I think this view gets some support from earlier comments in *On Winds*.

On Boreas as a wind that makes the sky cloudy, I found three passages that seemed relevant: Boreas is “rainy for those dwelling to the south and the east” (§ 4); “Notos is always clear in the nearby locations, whereas Boreas, when it is powerful during winter, is cloud-bearing in the neighboring locations, but clear beyond them” (§ 6); and, “in Plataea of Boeotia, which lies facing Boreas, Boreas is calm but Notos is powerful and stormy” (§ 32).

The Argestes is a roughly west-by-northwest wind, discussed (or mentioned) in §§ 51, 61, & 62. The subject of § 51 is a proverb (popular in Cnidus and Rhodes) about Lips and Argestes that is relevant here: “Lips wind quickly makes clouds and quickly clear skies, while every cloud follows Argestes wind.” Theophrastus adds that around Cnidus and Rhodes “Argestes quickly darkens the sky.” See the relevant commentary (pp. 314–317) for further discussion.

Regarding Notos and its connection to clear or cloudy skies: In addition to the above-cited Boreas-passages (from §§ 6 & 32), which mention Notos as well, there are these: “Notos ..., having less matter and not freezing it but thrusting it away, is always clear in neighboring locations. Yet it is always rainier in the far away locations” (§ 7); “some springtime Notos winds ... are called White Notos, since on the whole they are clear and cloudless” (§ 11); “Notos saturates and produces watery material” (54); “people feel heavier and more powerless in Notos winds; and the reason is ... a great deal of moisture” (56); and, “Notos winds, when they are dry and so not full of rain, are fever-producing” (57).

τὸ δ' ἔωθεν ἐπινέφειν καὶ δασύνειν ἄχρις ἂν ὁ ἥλιος ἀνίσχει, οὐχ ὕειν δὲ διὰ τὸ μὴ ἔχειν ὅπου προσκαθίζεται τὰ νέφη.

Theophrastus discusses (or mentions) morning winds or breezes in §§ 18, 24, 47–48, & 53. It is unclear to me why this *endoxon* is included here: perhaps it was considered paradoxical (that a morning breeze brings clouds but not rain);

or perhaps Theophrastus planned to discuss the falsehood of this claim or at least of the reason given for the morning breeze not producing rain (namely, that the clouds have no place to settle). I am not quite sure what is meant in this context by settling: perhaps not settling refers to the winds producing the clouds pushing them along. In any case, if Theophrastus accepted the truth of the first clause, his explanation for why morning breezes do not produce rain would almost certainly be that when the sun rises it burns off (much of) the moisture in the clouds. Cf. this passage from § 18: “For the winds begin around dawn or around dusk; but those from dawn abate when they are mastered (sc. by the sun), and they are mastered by midday.”

Two noteworthy emendations: (1) the opening word of this passage in ms. A (αἱ) does not seem to make sense (with the infinitive), so I have accepted Bonaventura’s suggestion τό (1593, 218), which works well.<sup>576</sup> Turnebus recommended αἶραι or ἔτι, Furlanus τοῦς (accepted by Wimmer and Coutant). (2) With other recent editors, I have accepted Schneider’s suggestion of προσκαθίζηται—though it is *hapax legomenon*—for ms. A’s προκαθίστηται (which is not a word).

νότον δὲ καὶ εὐρον καὶ ὅσα ἀπὸ μεσημβρίας ἄρχεσθαι μὲν ἀπ’ ἀνατολῶν συμπαραχωρεῖν δὲ τῷ ἡλίῳ, βορέαν δὲ καὶ ἀργέστην ἀνάπαλιν ἀπὸ δυσμῶν ἐπ’ ἀνατολᾶς.

The claims are: that all (ὅσα) the south winds (including Eurus, a roughly east-by-southeast wind) begin at sunrise (and not only do they start when the sun rises, but the sunrise causes them to begin); and, that the north winds (or at least Boreas and Argestes, the latter being a roughly west-by-northwest wind) begin from sunset. Now I take it that the claim that the (roughly) south winds “move along with the sun,” and that the (roughly) north winds move “from sunset to sunrise,” does not refer to the direction of the wind (i.e., e.g. the claim is not that Boreas at some point blows in the direction of the sunrise, i.e. to the east). Rather, the claim seems to be that the south winds begin to blow (in the locations where they blow) when the sun rises *there*, and that the north winds begin to blow (in the locations where they blow) when the sun is (about to) set *there*.

I can only speculate that Theophrastus intended to show that this neat generalization, contrasting north winds and south winds, was false, or that he intended to assess to what extent it was true. The motion of the sun is intimately connected to the blowing of Boreas and Notos (see §§ 2 & 10),

576 Gigon retains the reading of the manuscripts, and instead adds a lacuna: αἱ δ’ (...)

though Theophrastus does not describe that connection in the terms found in the present passage.

Eurus is discussed once elsewhere in *On Winds* (in § 53), paired with Notos there as well. See the relevant commentary (pp. 322–323). Argestes is mentioned in § 51 (paired with Lips), earlier in § 61 (paired with Boreas, as it is here), and in § 62 (where an alternative name is mentioned).

### *On Winds* 62

There is a brief ‘treatise’ (for lack of a better name) in the *corpus Aristotelicum* bearing the title (and sub-title or further description) *On Positions and Names of the Winds*, (taken) out of Aristotle’s *On Signs* (Ἀνέμων θέσεις καὶ προσηγορίαι ἐκ τῶν Ἀριστοτέλους περὶ Σημείων).<sup>577</sup> This work is generally considered inauthentic.<sup>578</sup> However that may be, there is no reason to doubt that Aristotle (like—or even with—Theophrastus) wrote an *On Signs* (on weather signs, that is), and that this work included a list of the various names for each wind, based on its position on the windrose.<sup>579</sup> (Whether Aristotle compiled it himself or merely assigned someone in the Lyceum to do it is immaterial.) Aristotle’s *Mete.* 2.6, the long chapter that concludes his account of the winds, begins περὶ δὲ θέσεως αὐτῶν (sc. ἀνέμων). In it, he describes the position or direction of the winds (clearly referring to a windrose). He often provides, in passing, alternative names for the winds.<sup>580</sup>

Given the Peripatetic interest in the various names of winds, it is not surprising that Theophrastus would end his account of the nature of the various winds with such a list. I assume *On Winds* originally consisted of one papyrus scroll; perhaps this ending—which would have been at the very center, where the scroll is most tightly wound—was especially vulnerable to corruption and loss. For whatever reasons, this portion of the text that survives is thoroughly

577 I refer to this work as the *On Positions*. Its abbreviation is vs.

578 Steinmetz (1964, 353–354) argues that Theophrastus’ lost *On Signs* was the source for the *On Positions*, which was in turn a source for § 62. But other relationships or paths of influence are possible, given the sparse evidence: e.g. that the original last section of *On Winds* (which survives as the mangled § 62) was a source for *On Positions*. See Sharples (1998, 144–145).

579 On the extant Peripatetic *On Signs*, as well as the similar works attributed to Aristotle and Theophrastus by Diogenes Laertius, see my commentary on § 35, p. 249.

580 [Arist.] *Mu.* 4 includes a list of names of the winds, with brief descriptions and in some cases alternative names (394b19–35).



corrupt, and I think there is every reason to believe that it was originally longer than it is now (and perhaps was followed by a more appropriate conclusion). And as there is no transition between the previous material and what survives of this list of names of winds (our § 62), I think it quite possible that the original opening of this section is missing as well. (In fact, I have inserted a lacuna in my text at that point, as well as at the end of the passage.) Absent any new papyrus or palimpsest discoveries, however, there is no way to recover the lost portion. Fortunately, Alexander of Aphrodisias, in his commentary on Aristotle's *Meteorology*, twice paraphrases the part of § 62 that does survive, which helps somewhat with its restoration.<sup>581</sup> See Sharples (1998, 156–158) for an excellent discussion of Alexander's contribution, and of § 62 generally.

In commenting on § 62, I can barely scratch the surface on the topic of the variety of names given for the various winds, and the inconsistencies in their usage in different areas. I will therefore comment almost exclusively on Peripatetic sources. On this subject more generally, see Böker 1958a and 1958b. Coutant & Eichenlaub's commentary on § 62 (1975, 89–90) consists almost entirely of quotations (in English translation) from Böker 1958a, on the names of winds mentioned in § 62. Sharples (1995, 156–158) is also quite useful.

⟨...⟩ ἐν Σικελίᾳ· καικίαν δ' οὐ καλοῦσιν ἀλλ' ἀπηλιώτην· δοκεῖ δ' οὐχ ὁ αὐτὸς εἶναί τισιν ἀλλὰ διαφέρειν, ὅτι ὁ μὲν δασύνει τὸν οὐρανόν, ὁ δ' οὐ (lac. 6 litt.)

I divide § 62 at the first lacuna in ms. A, though it is not clear whether this first line originally ended ὁ δ' οὐ (which is grammatically possible), or whether what is missing is (at least in part) the continuation of this clause. (Turnebus simply struck out the lacuna.) Aside from this issue, the first part of § 62 is (as far as I can tell) comparatively straightforward and free of textual corruption.

I believe we begin midstream (hence my addition of a lacuna) in a discussion either of alternative names of winds in Sicily or (more likely) of alternative names for Caecias. In any case, the claim seems to be that what is normally called 'Caecias' is called 'Apeliotes' in Sicily. This is somewhat strange, as Apeliotes is, according to Aristotle, *the* east wind,<sup>582</sup> whereas Caecias is the roughly east-by-northeast wind (blowing from the summer or equinoctial sunrise) (*Mete.* 2.6.363b13–18). Perhaps this was a Peripatetic *problema*: Why is Caecias called Apeliotes in Sicily? But confusion among the names of winds

<sup>581</sup> The help is minimal, however. It may well be that the end of *On Winds* was already lacunose or corrupt by the time Alexander read it.

<sup>582</sup> On the Apeliotes (which means 'from sunrise', i.e. the east), see Olshausen (2006).

that come from roughly similar locations (i.e. are close to each other on the windrose) was apparently common. For instance, the author of *On the Cosmos* states that it is Apeliotes that blows from the equinoctial sunrise (4.394b23–24). The author of *On Positions* ends the discussion of the names of Apeliotes with the claim that some think it is Caecias, calling it Thebanas (973b2–3).<sup>583</sup> And in fact Theophrastus too notes this sort of confusion in the second half of the present passage: “but to some it (i.e. Apeliotes) does not seem to be the same (as Caecias) but to be different, because the one (i.e. Caecias) makes the sky cloudy whereas the other does not.” Though Apeliotes is not discussed elsewhere in *On Winds*, Caecias is (§§ 37–39), and Theophrastus says that “Caecias alone brings the clouds to itself” (§ 37).

In ms. A this passage begins ἐν σικελίᾳ· καὶ χίαν δ' οὐ κτλ. The scribe of ms. D was surely right to change καὶ χίαν to καίχιαν (accepted in virtually all of the manuscripts).<sup>584</sup> Every manuscript but r (a copy of the Aldine) retains this punctuation and this position of δ'. The Aldine removed the punctuation however (ἐν σικελίᾳ καίχιαν κτλ.), which became standard thereafter. But this created a problem (or was thought to) regarding the position of δ': so Anon. emended καίχιαν δ' to δὲ καίχιαν, and that too became standard. These revisions may well be right. But as one can make sense of ms. A here (as emended in D), and as this portion of *On Winds* might have been presented as a list (cf. the ‘entries’ in *On Positions*), I have retained the punctuation in ms. A. and consequently its placement of δ' as well.<sup>585</sup> (It arguably counts against this retention that there are no other examples in the text that survives of the form ἐν + location [in dative] + punctuation [·], though ἐν τῷ Πόντῳ at the end of the chapter is a possible parallel.)

†πάρεγγυς† δὲ (*lac. 7 litt.*) οἱ μὲν οὖν ὀλυμπίαν, οἱ δὲ σκίρωνα καλοῦσιν, οἱ (δὲ) περὶ σικελίαν κίρκιαν.

In ms. A, this line reads:

πάρεγγυς δέ· οἱ μὲν οὖν ὀλυμπίαν· οἱ δὲ σκίρωνα καλοῦσιν ὑπὲρ σικελίαν,  
δερχίαν·

<sup>583</sup> Earlier in this work, the author lists several alternative names for the Caecias from various places, but none from Sicily (973a9–12). Those on Lesbos, he says, call the Caecias ‘Thebanas’.

<sup>584</sup> Ms. V has καίχιαν, with the first accent struck out; ms. z has καὶ χίαν. Clearly, the names of winds was unfamiliar territory for these scribes.

<sup>585</sup> Gigon restored the position of δ' but not the punctuation.

The original text is impossible to determine. But we can I think recover much of the sense of the line, with the help of other Peripatetic sources. Aristotle, in *Mete.* 2.6, says that “the wind from point E” (i.e. the summer sunset, roughly west-by-northwest) is the one “which some call ‘Argestes’, some ‘Olympias’, and some ‘Sciron’”<sup>586</sup> (363b23–25). Alexander of Aphrodisias cites Theophrastus in his comment on this passage: “And at point E ... is the (wind) called ‘Argestes’ by some, and ‘Olympias’ or ‘Sciron’ by others, and some name this wind ‘Iapyx’ as well, as Theophrastus says”<sup>587</sup> (CAG 3.2 p. 108.30–33 = 188 FHS&G). There is an entry on Iapyx in *On Positions* (973b14–17), which says that this wind is also known (depending on location) as Scylletinos, Phrygias, and Phrangites. The entry ends with the claim that many call it Argestes. Similarly, the author of *On the Cosmos* says that some call Argestes ‘Olympias’, others ‘Iapyx’ (394b25–26). To complicate matters, however, there is an entry on Thracias (θρακίας, another form of θρασκίας; cf. *Sign.* 35) in *On Positions* (973b18–22), which says that this wind is called “Scirron in the Megarid” (κατὰ δὲ τὴν Μεγαρικὴν σκίρρων) and “Circias in Italy and Sicily” (ἐν δὲ Ἰταλίᾳ καὶ Σικελίᾳ κίρκιαις).<sup>588</sup>

We can be fairly confident (especially given the evidence from Alexander) that in this passage, Theophrastus (if not beginning before the lacuna, then at some point within it) said either that Argestes was also known as ‘Olympias’ and ‘Sciron’ and ‘Iapyx’, or that Iapyx was also known as ‘Argestes’ and ‘Olympias’ and ‘Sciron’. Now it is just possible that ms. A’s πάρεγγυς (‘nearby’) is correct (nearby Sicily?), and I have retained it (obelized) in the text (as did Gigon). I think it more likely, however, to be a corruption of the name of a wind. Bonaventura changed πάρεγγυς to ἀργέστην, and he has been followed by nearly every editor since (though it is unclear how such a corruption could occur). Given the passage from Alexander, however, I think ἰάπυγα is slightly preferable.<sup>589</sup> If πάρεγγυς or ἰάπυγα is right, then I suspect the lacuna

586 ὁ ἀπὸ τοῦ Ε, ὃν καλοῦσιν οἱ μὲν ἀργέστην, οἱ δ’ ὀλυμπίαν, οἱ δὲ σκίρωνα.

587 καὶ ἐπὶ τοῦ Ε ... τὸν ὑπὸ τινων μὲν ἀργέστην καλούμενον, ὀλυμπίαν δ’ ὑπ’ ἄλλων καὶ σκίρωνα, ὀνομάζουσι δὲ τινες τὸν ἀνεμὸν τοῦτον καὶ ἰάπυγα, ὡς Θεόφραστος λέγει. Cf. N. Blemmydes, *Epitome physica* 17.10: ἀπὸ τῆς ἰσημερινῆς θερινῆς δυσμῆς ἀργέστης, ὁ καὶ ὀλυμπίας καὶ ἰάπυξ καὶ σκίρρων ὀνομαζόμενος (*Patrologia Graeca* vol. 142, p. 1168).

588 Cf. [Arist.] *Mu.* 4.394b30–31: θρασκίας ... ὃν ἔνιοι κίρκιαν καλοῦσιν.

589 One might argue that because Theophrastus discusses Argestes in §§ 51 & 61, that supports giving Argestes the initial mention. There is something to that, though in § 51 he is discussing a proverb about Lips and Argestes, and in § 61 what people say about Boreas and Argestes, which undercuts this argument somewhat. Argestes is also mentioned in [Thphr.] *Sign.* 35–37.

explains the absence of Argestes. (This was Gigon's view, as he intended to print †πάρεγγυς† δὲ ἀργέστην) οἱ μὲν κτλ.)

Re. οἱ μὲν οὖν Ὀλυμπίαν: Schneider, Wimmer, and Coutant have followed Bonaventura (1593, 221) in bracketing οὖν. I was tempted to do so as well; but the text is so corrupt that any changes to it are risky. (Gigon struck out the brackets around οὖν in his copy of Wimmer.) And besides, it is possible that the preceding lacuna represented much more than just seven letters, and that οἱ μὲν οὖν Ὀλυμπίαν began a new sentence. Theophrastus elsewhere refers to Olympias, which he says blows so cold in Chalcis (on Euboea) that it damages trees (*HP* 4.14.11, *CP* 5.12.4).

Re. οἱ δὲ σκίρωνες: There is seemingly conflicting evidence from two later historians concerning this wind-name. Strabo (d. ca. 25AD) says that Zephyrus winds (by which he presumably means any western winds), and especially Argestes winds, are called Sceiron (surely an alternative spelling for Sciron); and, he gives the same reason given in *On Positions* (973b19–20): that they blow from the Sceironis rocks (1.2.20).<sup>590</sup> Arrian, in *Guide to the Black Sea* (Περὶ πλοῦς Εὐξείνου Πόντου) § 4, says that there is a place on that sea that has the name 'Athens' (1), and its port can protect ships from Notos, Eurus, and Boreas winds, "but not from Arctic nor from the one called Thrascias in the Pontus but Sciron in Greece" (2).<sup>591</sup> I add this simply to stress the confusion regarding the names of winds, and how they differed from place to place (and era to era).

Re. οἱ δὲ περὶ σικελίαν κίρκιαν: I follow Schneider (without too much confidence) in reading οἱ δὲ περὶ in place of ms. A's ὑπερ. Bonaventura (1593, 221), on the authority of Alexander, takes ms. A's δερκίαν to be a corruption of ἰάπυγα. But Alexander does not specify Sicily. On much more solid ground paleographically is Turnebus' emendation of δερκίαν to δὲ κίρκιαν (though I follow Coutant in dropping the δέ). So Theophrastus seems to be saying that those around Sicily use the name 'Circias' for the wind that others call 'Olympias' and 'Sciron'. (Much is unclear here, however, and in the next section I speculate about the possibility of οἱ περὶ σικελίαν being out of place in our text.)

590 καθάπερ καὶ τῇ Ἀττικῇ ἀπὸ τῶν Σκειρωνίδων πετρῶν, ἀφ' ὧν καὶ Σκείρωνες καλοῦνται οἱ ζέφυροι, καὶ μάλιστα οἱ ἀργέσται. These rocks are called the Scirronides in *On Positions*.

591 ἀλλὰ οὐ τοῦ γε ἀπαρκίου οὐδὲ τοῦ θρασκίου μὲν ἐν τῷ Πόντῳ, σκίρωνος δὲ ἐν τῇ Ἑλλάδι καλουμένου. Arrian's passage sounds odd, given that Aristotle treats Arctic and Boreas as identical (*Mete.* 2.6). But it could be that Arrian was influenced or confused by the practice of using 'Boreas' to refer to any northern wind, reserving 'Arctic' for the true north wind (see [Arist.] *Mu.* 4.394b20 & 28–31).

τὸν <δ'> ἀπηλιώτην ἑλλησποντίαν, κάρβαν δὲ Φοίνικες, βερεκ(υντίαν) δ' (οἱ) ἐν τῷ Πόντῳ <...>

Theophrastus here returns to Apeliotes, but not as an alternative name for Caecias. We again get help from Alexander's commentary on the same passage in Aristotle's *Mete.* 2.6 (a few lines prior to the passage quoted above): "... Apeliotes, which Theophrastus says is called 'Hellespontias' among the Sicilians, but 'Carbas' among the Phoenicians, and 'Berecynthias' in the Pontus"<sup>592</sup> (CAG 3.2 p. 108.20–23; cf. 189.2 FHS&G). Alexander not only confirms what Theophrastus says in our text and helps with a mutilated name (βερεκυντίαν for ms. A's βερεῖ ...), he also provides further information: where (the remains of) our passage simply implies that *some* call Apeliotes 'Hellespontias', Alexander specifies the Sicilians. Now it could be that there is something further missing between the previous line of §62 and this one (and if I were confident that that was the case, I would have marked a lacuna before τὸν ἀπηλιώτην rather than inserting a δ' between them). Or it could be that the καλοῦσιν ὑπὲρ σικελίαν or ὑπὲρ σικελίαν is out of place in ms. A, and that the text of *On Winds* that Alexander had access to read something like: καλοῦσιν δὲ οἱ περὶ σικελίαν τὸν ἀπηλιώτην ἑλλησποντίαν κτλ., "And those around Sicily call Apeliotes 'Hellespontias'" etc.<sup>593</sup>

Aristotle, however, says that some call *Caecias* 'Hellespontias' (... καικίας, ὃν ἑλλησποντίαν ἔνιοι καλοῦσιν, *Mete.* 2.6.364b18–19). And in the entry on Apeliotes in *On Positions* (973a13–b2), the author states that (among other names and locations mentioned) Apeliotes is called Potemeus at Tripolis in Phoenicia (Carbas is nowhere mentioned), 'Hellespontias' in Proconnesus, Teos, Crete, Euboea, and Cyrene, 'Berecynthias' in Sinope, and 'Cataporthmias' in Sicily.<sup>594</sup>

592 ... ἀπηλιώτην, ὃν Θεόφραστος λέγει παρὰ μὲν Σικελιώταις 'Ἑλλησποντίαν καλεῖσθαι, παρὰ δὲ Φοίνιξι κάρβαν, βερεκυντίαν δὲ ἐν Πόντῳ. Cf. N. Blemmydes, *Epitome physica* 17.10: ἀπὸ τῆς ἰσημερινῆς ἀνατολῆς ἀπηλιώτης, ὃ παρὰ Σικελιώταις 'Ἑλλησποντίαν καλούμενος, καρνάβας δὲ παρὰ Φοίνιξι καὶ παρὰ τοῖς ἐν Πόντῳ βερεκυντίας (*Patrologia Graeca* vol. 142, p. 1168).

593 Relying on Alexander's text, Gigon suggests τὸν ἀπηλιώτην (δὲ Σικελιώταις) ἑλλησποντίαν κτλ.

594 Ἀπηλιώτης. οὗτος ἐν μὲν Τριπόλει τῆς Φοινίκης Ποταμεὺς καλεῖται, πνεῖ δὲ ἐκ πεδίου ὁμοίου ἄλῳνι μεγάλῃ, περιεχομένου ὑπὸ τε τοῦ Λιβάνου καὶ τοῦ Βαπύρου ὄρους· παρὸ καὶ Ποταμεὺς καλεῖται. ἐνοχλεῖ δὲ τὸ Ποσειδώνειον. ἐν δὲ τῷ Ἰστικῷ κόλῳ καὶ περὶ Ῥωσσὸν Συριάνδος· πνεῖ δὲ ἀπὸ τῶν Συρίων πυλῶν, ἃς διέστηκεν ὃ τε Ταῦρος καὶ τὰ Ῥώσια ὄρη. ἐν δὲ τῷ Τριπολιτικῷ κόλῳ Μαρσεὺς, ἀπὸ Μάρσου κώμης. ἐν δὲ Προκοννήσῳ καὶ ἐν Τέῳ καὶ ἐν Κρήτῃ καὶ Εὐβοίᾳ καὶ Κυρήνῃ 'Ἑλλησποντίας. μάλιστα δὲ ἐνοχλεῖ τὸν τε τῆς Εὐβοίας Καφηρέα καὶ τὸν Κυρηναῖον λιμένα, καλούμενον δὲ Ἀπολλωνίαν· πνεῖ δὲ ἀφ' Ἑλλησπόντου. ἐν δὲ Σινώπῃ Βερεκυντίας ἀπὸ τῶν κατὰ Φρυγίαν τόπων πνέων. ἐν δὲ Σικελίᾳ Καταπορθμίας, πνέων ἀπὸ τοῦ πορθμοῦ. τινὲς δὲ αὐτὸν Καικίαν οἰοῦνται εἶναι, Θηβάναν προσαγορεύοντες.

And as we have seen, he adds that some think Apeliotes is Caecias, and call it 'Thebanas'. So confusion abounds.

This is perhaps (and alas) a fitting note with which to end the commentary.

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